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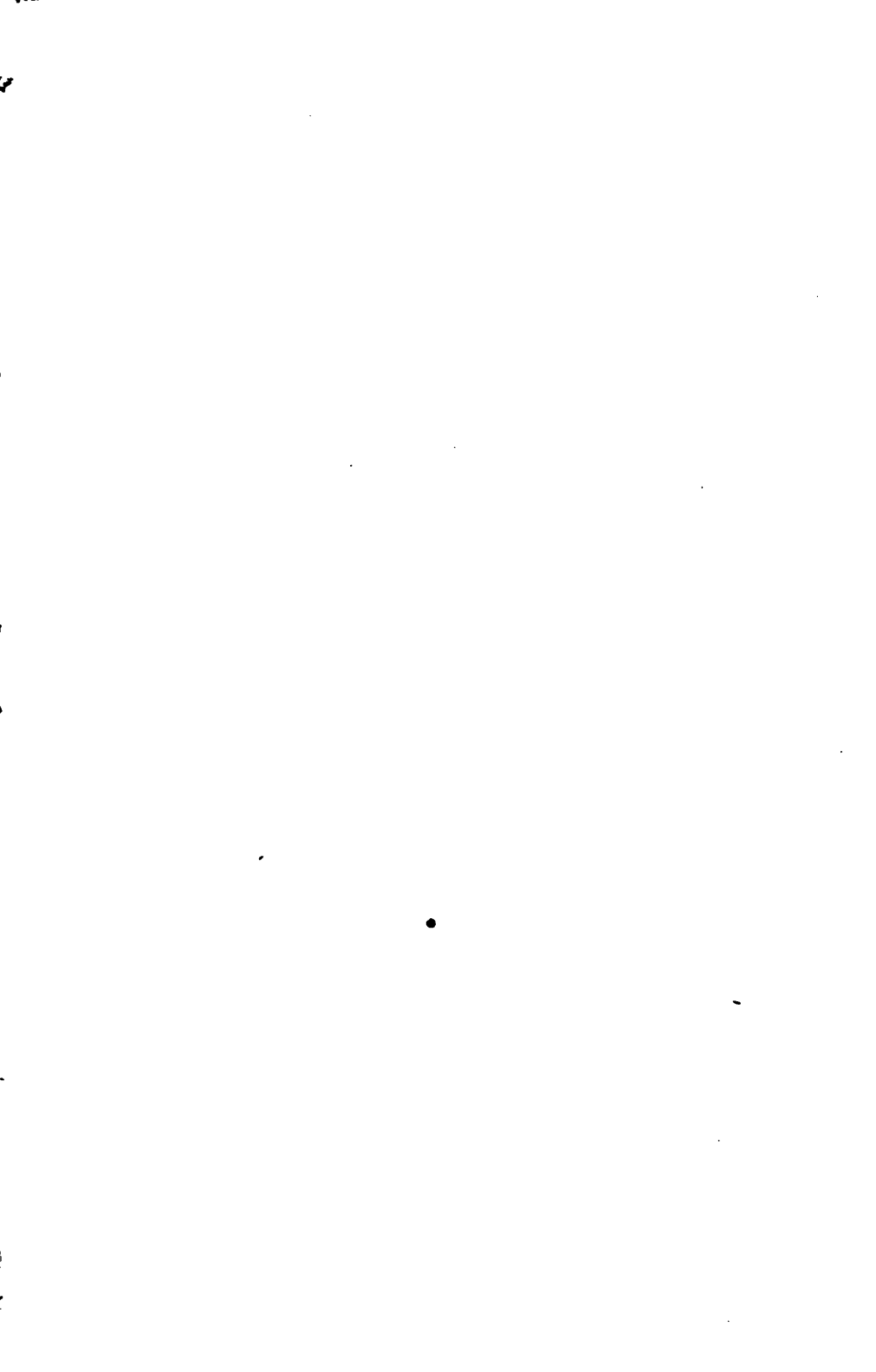
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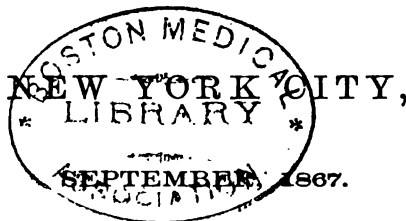
OF THE

American Pharmaceutical Association

AT THE

FIFTEENTH ANNUAL MEETING,

HELD AT



ALSO THE

CONSTITUTION AND ROLL OF MEMBERS.

PHILADELPHIA:

MERRIHEW & SON, PRINTERS,

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1867.



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P. W. BEDFORD,	New York,	1860-62
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LOCAL SECRETARIES.

P. W. BEDFORD,	New York,	1866-67
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CONTENTS.

Prefatory Notice,	14
Minutes of the Fifteenth Annual Meeting.	
Minutes of the First Session,	17
Delegates to the Fifteenth Annual Meeting,	18
Election of members,	19
Roll of members in attendance,	20
Reports of Committees presented,	21
Publications presented,	21
Nominating Committee appointed,	22
Amendment to the Constitution proposed,	22
President's address read,	23
Minutes of the Second Session,	26
Report of the Executive Committee read,	27
" Permanent Secretary read,	29
" Treasurer read,	30
Auditing Committee appointed,	33
Report of the Nominating Committee,	33
Discussion on nominations,	34
Amendment to the Constitution proposed,	38
Election of officers,	38
Inaugural address of President Milhau,	39
Vote of thanks to retiring officers,	40
Reports of Committees read,	40
Discussion on the Report on the Drug Market,	40
" " " " Internal Revenue Law,	49
Minutes of the Third Session,	50
Report on the International Pharmaceutical Congress read,	51
Death of M. Guibourt noticed,	51

Election of members,	52
Amendment to Constitution discussed,	53
" " Art. II. Sect. 1 adopted,	57
Report of Auditing Committee,	57
Special Reports read,	58
Discussion on wines,	58
" " adulterations of honey,	61
" " veratrum viride,	62
Remarks on chrysophanic acid in senna,	63
Discussion on ergot,	63
Minutes of the Fourth Session,	67
Election of members,	67
Committee on Specimens appointed,	67
Amendment to Constitution discussed,	68
Life-membership abolished,	72
Annual contribution increased,	73
Fee for certificate of membership increased,	74
Signatures to certificate regulated,	74
Resolution for endowment of a central library and cabinet, offered,	76
Volunteer papers read,	77
Discussion on the use of benzoin and yellow wax in ointments,	77
Discussion on podophyllum, &c.,	81
" " protoxalate of iron,	82
" " spirit of nitrous ether,	83
Minutes of the Fifth Session,	84
Discussion on cream of tartar,	84
" " continuing the Committee on the Internal Revenue Law,	86
Salary to Treasurer and Secretary fixed,	90
Discussion on hydrated sesquioxide of iron,	91
Substitution of serpentaria by hydrastis,	92
Donation from Dr. H. T. Cummings, S. M. Colcord, &c.,	93
Special Reports read,	93
Discussion on cubebs,	93
" " tinct. ferri chloridi,	95

CONTENTS.

11

Election of members,	98
Minutes of the Sixth Session,	99
Election of members,	99
Case of Mr. J. L. Hunnewell, of Boston,	99
Annual meeting in 1868,	105
Local Secretary elected,	105
Resolution in regard to control of the practice of Pharmacy,	105
Special Reports read,	108
Discussion on funnels, filters, &c.,	109
Member elected,	112
Letter from East River Medical Association,	112
Model of a mill exhibited,	114
Report of Committee on Queries read,	116
Resolutions of thanks,	121
Adjournment,	121
Excursion of the Association and friends,	121
Meeting of the visiting members,	122

Reports of Committees.

Report on the Progress of Pharmacy,	123
Obituary,	126
List of Publications,	127
Pharmacy,	138
Materia Medica,	172
Vegetable Drugs,	172
Animal Drugs,	192
Minerals,	192
Medicinal Chemicals,	194
Inorganic Chemistry,	199
Organic Chemistry,	227
Vegetable Chemistry,	266
Report on the Drug Market,	267
General view of the New York Drug Market,	270
“ “ “ Philadelphia “	275
“ “ “ Baltimore “	277
“ “ “ Boston & Charlestown Drug Market,	279
New York Imports,	289

Philadelphia Imports,	294
Baltimore "	297
" Exports,	299
Boston Imports,	299
Report on the Internal Revenue Law,	308
Report of the Delegates to the Pharmaceutical Congress at Paris,	314
Report of Committee on Specimens,	318
Class I. Chemicals, Drugs, Pharmaceutical Preparations,	319
Class II. Objects representing Processes, Apparatus, Books, &c.,	327

Special Reports and Essays.

On Cubebin and the diuretic principle of Cubebs. By F. V. Heydenreich,	337
On the compound decoction of Sarsaparilla, U. S. P. By Wm. Saunders,	339
On Honey and its adulteration. By Ferris W. Colby,	341
On Syrupus Senegæ. By C. Lewis Diehl,	342
On Butter of Cacao, Oleum theobromæ. By Henry W. Lin- coln,	347
Ergot. By James W. Will,	358
Veratrum viride. By Charles Bullock,	360
On Tinctura Ferri Chloridi, U. S. P. By F. V. Heyden- reich,	361
On Colchicine. By C. Lewis Diehl,	363
On Chrysophanic Acid in Senna. By F. W. Sennewald, .	371
On Beeswax. By Jas. F. Babcock,	372
On Pill Machines. By Ferris Bringham,	375

Volunteer Reports and Essays.

Bitartrate of Potash, &c., from Catawba Wine. By E. S. Wayne,	377
American Opium. By E. S. Wayne,	378
On the relative value of the rhizoma and radical fibres of Podophyllum peltatum. By Wm. Saunders,	379
On Commercial Jalap. By Edward R. Squibb, M. D., .	380
Solution of Bi-meconate of Morphia. By E. S. Wayne,	382

Sweet Spirit of Nitre. By A. Theod. Moith,	388
On the preparation of hydrated Sesquioxide of Iron. By Philip L. Milleman,	384
On the use of Benzoin in Ointments. By Thomas Doliber,	385
Lac Sulphur. By A. Theod. Moith,	385
Poison Bottles. By Aug. Theod. Moith,	390
Repercolation applied to the Cinchonas. By Edward R. Squibb, M. D.,	391
"Mata." By E. S. Wayne,	400
Gizzard of the South American Ostrich. By E. S. Wayne,	400
Quicksilver in North Carolina. By E. S. Wayne,	401
Cryolite and its Products. By Evan T. Ellis,	402
On Hyoscyamia. By Arthur Wadgymer, M. D.,	404
On the use of Oxalate of Iron in Medicine. By G. G. C. Simms,	407

Appendix.

List of Societies, Libraries, Journals, and Individuals to whom complimentary copies of the Proceedings are for- warded,	411
List of publications received,	413
Constitution,	415
Form of application for membership,	420
Roll of members,	421
List of deceased members,	439
" resignations,	441
" members dropped from the roll,	441
Alphabetical Index of Contents,	443

PREFATORY NOTICE.

The Proceedings of the American Pharmaceutical Association at its fifteenth annual meeting are herewith presented to the members. Notwithstanding its increased size, the volume appears considerably in advance of the time when the former ones were issued. After the close of the meeting the phonographer's report must be written out, thus causing a delay of several weeks before printing can be commenced. This report, furnished by Mr. Jas. H. Slade, of Boston, has been very carefully prepared this year, and is embodied almost entirely in the present volume. We trust that this will add greatly to the interest with which our Proceedings will be read, especially those discussions which refer to preparations, processes, apparatus, adulterations, to the standing of the profession of Pharmacy, its relations to kindred professions, and to the welfare and usefulness of our Association.

The members will observe that the Constitution has been altered, in several important points, at the fourteenth and fifteenth annual meetings. The changes to which we refer are:—

1. An admission fee of \$3 is now charged to incoming members.
2. The annual contribution has been increased to \$3.
3. Life membership is abolished for the future; that is, all members will hereafter be contributing members, as long as they retain their connection with the Association.
4. The fee for the certificate of membership will hereafter be \$5.

The present volume proves the wisdom of the Association in adopting these financial measures. While a great deal of information on this subject will be found in the discussions of the third

and fourth sessions, it should be borne in mind that the expenses of publishing and distributing this volume will be far beyond those of previous ones; indeed, *the distribution of the Proceedings alone, it is calculated, will cost the Association as much as the entire publication and distribution of the annual volume did not many years ago.*

This single statement, it is hoped, will be another reason, and a very weighty one, why all members should respond heartily to the appeal of the Association to give up their right to life membership. The great unanimity which characterized the action on the above points, the readiness with which the members present in New York threw up their rights just referred to, the handsome donations made by several members, all prove the spirit of liberality among our members, and justify the hope that the financial embarrassments of our Association will now be ended.

In regard to the increase in the charge for the certificate of membership, all the present members are entitled to receive it now for \$3. All those desiring one should at once apply to the Treasurer, Mr. Chas. A. Tufts, of Dover, N. H. With the next annual meeting the fee will be \$5 to all members.

The rapid increase in membership, and the extension of our relations to other scientific associations, are matters for congratulation, and cannot fail to increase the usefulness of the Association in raising the status of American Pharmacy, and to connect with it all those pharmacists whose aim is a higher one than simply success in business.

A novel feature in the history of the Association is that it was represented at and participated, through its Delegates, in the deliberations of the International Pharmaceutical Congress which was held at Paris in August last. The report of the Delegates will undoubtedly be of great interest to all members.

The stock of the older volumes of Proceedings is gradually diminishing, and several are almost out of print,—an incentive to those who wish to complete their sets to do so without delay, by applying to either of the undersigned. The prices of the several issues are as follows, *exclusive of postage or express charges* :—

1851, '52, '53, '54, '55, '56,	unbound,	25 cts. each.	
1857,	. . . . .	" 40	bound, \$ 70
1858,	. . . . .	" 1.20	" 1.50
1859,	. . . . .	" 1.20	" 1.50
1860,	. . . . .		" 1.00
1862,	. . . . .		" 1.25
1863,	. . . . .		" 1.25
1864, '65, '66,	. . . . .	" 1.20	" 1.50
1867,	. . . . .	" 2.00	" 2.30

The entire set of bound volumes, except the first six, which are in paper covers, will be supplied at \$14.50. Complete sets of the Proceedings, in paper covers, except 1860, '62 and '63, which are bound, will be furnished at \$12.00. No Proceedings were published in 1861.

The next (sixteenth) annual meeting of the Association will be held on the second Tuesday of September, 1868, in the city of Philadelphia. It is very desirable that applications for membership should be handed to the Chairman of the Executive Committee as early as convenient, if possible *before* the commencement of the meeting, where the growing interest in the Association, it is to be hoped, will assemble most of the older and a great many new members.

THOS. S. WIEGAND,
Chairman of Executive Committee,
 N. E. cor. Sixth and Arch Sts., Philadelphia.

JOHN M. MAISCH,
Permanent Secretary Amer. Pharm. Assoc.,
 1607 Ridge Avenue, Philadelphia.

MINUTES

OF THE

FIFTEENTH ANNUAL MEETING.

First Session.—Tuesday, Sept. 10th, 1867.

The Association met at the University Buildings, in the city of New York, on Sept. 10th, 1867, at 3 o'clock, P. M. First Vice-President, Edward Parrish, of Philadelphia, in the Chair; John M. Maisch, Secretary.

Prof. Parrish read a letter from President Frederick Stearns, in which he stated that it would be impossible for him to be present at this meeting, on account of ill health.

The acting President appointed the following Committee on Credentials: Robt. J. Brown, Leavenworth, Kansas; M. M. Selfridge, Bethlehem, Pa.; C. Lewis Diehl, Louisville, Ky. The Committee retired to examine the credentials; meanwhile the members present were requested to register their names.

A communication was received from the Long Island Historical Society, inviting the members of this Association to visit their rooms, and offering the use of their library and reading room to the Association.

MR. CLOSE.—That institution is more than its name indicates. There is quite an extensive museum of natural history connected with it, particularly the natural history of Long Island, making a visit to it very interesting.

On motion of the Business Committee, the Permanent Secre-

tary was directed to return to the Long Island Historical Society the thanks of the Association.

The Committee on Credentials then reported the following gentlemen duly accredited as delegates to this meeting :

From the Maine Pharmaceutical Association.—Charles K. Partridge, Henry T. Cummings, M. D., Edmund Dana, Jr., John G. Cook.

From the Massachusetts College of Pharmacy.—Charles A. Tufts, Geo. F. H. Markoe, H. W. Lincoln, Samuel M. Colcord, A. P. Melzar.

From the College of Pharmacy of the City of New York.—James S. Aspinwall, George C. Close, William Neergaard, William Wright, Jr., William Hegeman.

From the Philadelphia College of Pharmacy.—Edward Parrish, James T. Shinn, H. N. Rittenhouse, A. B. Taylor, E. T. Ellis.

From the Maryland College of Pharmacy.—J. B. Baxley, Wm. S. Thompson, J. F. Hancock, J. J. Thomsen, J. O. Leamy.

From the Pharmaceutical Association of the District of Columbia.—G. G. C. Simms, John A. Milburn, J. N. Callan, J. Stanley Jones, Chas. C. Callan.

From the Cincinnati College of Pharmacy.—E. S. Wayne, W. E. Reifsnider, A. M. Johnson, A. Foertmeyer, W. J. M. Gordon.

From the Chicago College of Pharmacy.—E. H. Sargent, Philip L. Milleman, C. Lewis Diehl, John Burrell, Robert J. Brown.

From the Alumni Association of the Philadelphia College of Pharmacy.—Thomas S. Wiegand, C. L. Eberle, Wm. C. Bakes, Henry Bower, W. W. Mullen.

VICE-PRESIDENT PARRISH.—The Pharmaceutical Association of Maine has not before been represented in the Association. If a delegate is in attendance, it would be satisfactory to the Association to know something about that organization.

DR. CUMMINGS.—The Maine Pharmaceutical Association has just been organized, and, desiring to exhibit their good will and their approval of, and co-operation with the objects of the American Pharmaceutical Association, they have reported themselves here, and hope to be received among the fraternity. We hope in another year to be able to speak better for ourselves. The Association was organized during the month of July.

The report of the Committee on Credentials was on motion accepted.

A resolution was offered to invite the medical profession to participate in our proceedings. This being objected to, it was, on motion of Alfred B. Taylor, of Philadelphia, unanimously

Resolved, To invite the Professors of the College of Pharmacy, and of

the medical colleges of this city, also the medical profession in general, to seats in the present meeting.

The Executive Committee presented the following gentlemen as candidates for membership in the American Pharmaceutical Association, they having complied with the terms of the Constitution :

Chas. K. Partridge, Augusta, Me.	Thos. J. Casper, M.D., Phila., Pa.
H. H. Hay, Portland, Me.	John Heyl Raser, Reading, "
Luther L. Jenkins, Boston, Mass.	P. M. Ziegler, " "
Wm. F. Nowell, " "	M. C. Morgan, Pittsburg, "
Frederick Hoffmann, Ph. D., New York City.	Danl. B. Street, Centreville, Md.
John W. Gilmore, " "	Danl. P. Hickling, Washington, D.C.
John McKesson, jr., " "	R. B. Ferguson, " "
David Hays, " "	R. S. Drake, Piqua, O.
Herschel Parker, Brooklyn, N. Y.	Jas. C. Meseroll, Jackson, Mich.
Jas. H. Ollif, " "	Jas. W. Backus, Marine City, Mich.
C. N. Stirling, " "	Alf. A. Dunk, East Saginaw, "
Ambrose C. Snyder, " "	John H. Ehlers, Auburn, Ind.
William Wynn, Brooklyn, N. Y.	J. C. Borchardt, Chicago, Ill.
Thos. Lewis, " "	J. W. Ehrman, " "
Jos. P. Remington, " "	W. Austin Joyce, " "
F. C. Mussgiller, " "	Ghas. K. Jones, Louisville, Ky.
Bernard Goodman, Yonkers, N. Y.	E. T. Porter, Junction City, Kansas.
John A. Vandegrift, Burlington, N. J.	Jacob Krummeck, Santa Fe, New Mexico.
Jas. M. Harner, Jersey City, N. J.	F. O. Herbruger, Panama, Central America.
Wm. R. Laird, " "	Henry R. Gray, Montreal, Canada.
W. B. Abell, Philadelphia, Pa.	Nathan Mercer, " "
Louis J. Bauer, " "	Thomas Lawrence, Hamilton, Canada.
Henry Cramer, " "	Geo. W. Morgan, Jr., St. Thomas, Canada.
Augustus Eyerhart, " "	
Decatur Milligan, " "	
Wm. H. Webb, M.D., " "	

MR. MAISCH.—There is a proposal of a gentleman who resides in Panama. We have had one of our members living in Panama, who was at that time the Consul of the United States. This is the first time that a member has been proposed from that place. In presenting his name to the Executive Committee I thought there could not be any objection to it, since heretofore we have been electing members outside of the United States,—not only from Canada, but from the West Indies; and I believe Panama, like the West Indies, belongs to America.

On motion, the candidates were balloted for, Ferris Bring-

hurst, of Wilmington, Del., and Thos. H. Barr, of Terre Haute, Ind., acting as tellers, who reported their unanimous election by fifty-two votes.

The roll of members being called, the following answered to the call of their names :*

H. C. Archibald, Philadelphia, Pa.	Richard Frohwein, Elizabethport, N. J.
W. C. Arons, Cincinnati, O.	Theobald Fröhwein, New York City.
Wm. C. Bakes, Philadelphia, Pa.	A. W. Gabaudan, New York City.
Paul Balluff, New York City.	C. J. Geiger, Canton, O.
Thos. H. Barr, Terre Haute, Ind.	W. J. M. Gordon, Cincinnati, O.
J. B. Baxley, Baltimore, Md.	Thos. T. Green, New York City.
P. W. Bedford, New York City.	Fleming G. Grieve, Milledgeville, Ga.
E. Bigelow, Springfield, Mass.	J. F. Hancock, Baltimore, Md.
L. R. Blackman, Westerly, R. I.	Jas. M. Harner, Jersey City, N. J.
Ed. McC. Boring, Philadelphia, Pa.	Henry Haviland, New York City.
Wm. A. Brewer, New York City.	David Hays, " "
Ferris Bringham, Wilmington, Del.	Chas. A. Heinitch, Lancaster, Pa.
R. J. Brown, Leavenworth, Kansas.	Edw. H. Heinitch, Columbia, S. C.
Jas. N. Callan, Washington, D. C.	F. V. Heydenreich, Brooklyn, N. Y.
Chas. C. Callan, " "	Jas. S. Higgins, New York City.
P. C. Candidus, Aberdeen, Miss.	C. F. L. Hohenthal, " "
Thos. J. Casper, M. D., Phila., Pa.	N. H. Jennings, Baltimore, Md.
Geo. C. Close, Brooklyn, N. Y.	Edw. C. Jones, Philadelphia, Pa.
Isaac Coddington, New York City.	H. T. Kiersted, New York City.
Ferris W. Colby, " "	Henry Kiersted, " "
Saml. M. Colcord, Boston, Mass.	Henry Kimmel, " "
Thos. J. Covell, Brooklyn, N. Y.	Jas. T. King, Middletown, N. Y.
H. T. Cummings, Portland, Me.	C. W. Kitchen, New York City.
C. G. Curtiss, Brooklyn, N. Y.	Gustavus Krehbiel, New York City.
Alfred Daggett, Jr., New Haven, Conn.	Wm. R. Laird, Jersey City, N. J.
C. H. Dalrymple, Morristown, N. J.	Thos. A. Lancaster, Philada., Pa.
C. Lewis Diehl, Louisville, Ky.	Alson Landon, Parma, Mich.
R. S. Drake, Piqua, O.	Robt. F. Lattimer, Westerley, R. I.
A. G. Dunn, New York City.	Thos. Lawrence, Hamilton, Canada.
John A. Dunn, Brooklyn, N. Y.	J. C. Leamy, Baltimore, Md.
Chas. L. Eberle, Germantown, Pa.	Henry W. Lincoln, Boston, Mass.
George W. Eldridge, Philada., Pa.	John C. Long, Lancaster, Pa.
Evan T. Ellis, " "	William H. MacRae, Staten Island, N. Y.
Michael Flynn, New York City.	
Max. Frohwein, " "	

* This roll contains the names of all members present at any of the sessions of this meeting.

John M. Maisch, Philadelphia, Pa.	Jas. S. Scofield, New York City.
Geo. F. H. Markoe, Boston, Mass.	M. M. Selfridge, Bethlehem, Pa.
F. F. Mayer, New York City.	John W. Shedden, New York City.
Geo. B. McPherson, Cincinnati, O.	Jas. T. Shinn, Philadelphia, Pa.
A. P. Melzar, Charlestown, Mass.	Giles G. C. Simms, Washington, D. C.
Jas. C. Meseroll, Jackson, Mich.	Ambrose Smith, Philadelphia, Pa.
T. W. Metcalf, Brooklyn, N. Y.	Isaac W. Smith, Philadelphia, Pa.
J. A. Meyers, Columbia, Pa.	E. B. Squibb, Brooklyn, N. Y.
Edw. T. Meyers, Bethlehem, Pa.	B. F. Stacey, Charlestown, Mass.
Jno. A. Milburn, Washington, D. C.	R. H. Stabler, Alexandria, Va.
John Milbau, New York City.	Wm. G. Stephens, Yonkers, N. Y.
P. L. Milleman, Chicago, Ill.	Alfred J. Tartise, Brooklyn, N. Y.
Ernest Molwitz, New York City.	Alfred B. Taylor, Philadelphia, Pa.
J. Faris Moore, Baltimore, Md.	R. J. Taylor, Newport, R. I.
F. C. Mussgiller, Brooklyn, N. Y.	Wm. S. Thompson, Baltimore, Md.
Wm. Neergaard, New York City.	John J. Thomsen, " "
Joel S. Orne, Cambridgeport, Mass.	Chas. A. Tufts, Dover, N. H.
Edward Parrish, Philadelphia, Pa.	Wm. R. Warner, Philadelphia, Pa.
Chas. K. Partridge, Augusta, Me.	Henry Warren, Boston, Mass.
N. F. Peck, Rockville, Conn.	F. P. Whiting, Great Barrington, Mass.
T. Morris Perot, Philadelphia, Pa.	Thos. S. Wiegand, Philada., Pa.
Wilson H. Pile, " "	Joshua G. Wilbur, M. D., Brook- lyn, N. Y.
Cyrus Pyle, Brooklyn, N. Y.	Wm. Wright, Jr., New York City.
G. Ramsperger, New York City.	P. M. Ziegler, Reading, Pa.
B. H. Reinold, " "	
Jos. P. Remington, Brooklyn, N. Y.	
E. H. Sargent, Chicago, Ill.	
Wm. Saunders, London, Canada.	

The Standing and Special Committees being called upon to report, the following reports were read by their titles, and laid upon the table for future action :

Report of the Executive Committee, embracing also the report of the Permanent Secretary ;

Report of the Committee on the Progress of Pharmacy ;

Report of the Committee on the Drug Market ;

Report of the Committee on Scientific Queries ;

Report of the Committee on the Internal Revenue Law ;

Report of the Delegates to the International Pharmaceutical Congress, held at Paris August 21st.

The reading of the report of the Executive Committee was postponed until the beginning of the second session.

Vice-President Parrish laid before the meeting the following

works, which had just been received : Proceedings of the British Pharmaceutical Conference ; Exhibition of objects relating to pharmacy, held at Nottingham, 1866 ; Pharmaceutical Ethics, by Joseph Ince.

The Permanent Secretary presented, from the author, Dr. F. A. Flückiger, President of the Swiss Apothecaries' Association, *Lehrbuch der Pharmakognosie des Pflanzenreiches* (Pharmacognosy of the Vegetable Kingdom).

The appointment of a Nominating Committee being in order, the following members were appointed to that duty :

From the College of Pharmacy of the City of New York, G. C. Close.

From the Maine Pharmaceutical Association, Charles K. Partridge.

From the Massachusetts College of Pharmacy, H. W. Lincoln.

From the Philadelphia College of Pharmacy, A. B. Taylor.

From the Maryland College of Pharmacy, J. C. Leamy.

From the Pharm. Association of the District of Columbia, James N. Callan.

From the Cincinnati College of Pharmacy, W. J. M. Gordon.

From the Chicago College of Pharmacy, E. H. Sargent.

From the Alumni Association Phila. Coll. Pharm., Thos. S. Wiegand.

From the Association at large, C. H. Dalrymple, Morristown, N. J., W. H. Saunders, London, C. W., P. C. Candidus, Aberdeen, Miss.

DR. SQUIBB.—The Business Committee have a proposition for a change in the Constitution, which must lay over at least one session. If it is the pleasure of the Association, it can be read now. The Association are probably aware that one of the most important subjects that will come up before it at this meeting is some means of providing revenue to meet the increased expenses of the Association. It is proposed that the Constitution should be so altered as to effect that purpose. This proposition simply requires to be read now, and then laid over and be talked upon by the members, so they can be prepared to discuss it at one of the next sessions.

MR. TUTTS.—After the Treasurer's report has been read I will give some facts in regard to the finances of the Association.

PROF. PARRISH said that he understood that the address of President,

Stearns contained some recommendations in regard to increasing the revenue of the Association, and inquired of Dr. Squibb whether it would not be better to postpone the reading of the amendments proposed by the Business Committee until after the reading of the address.

Dr. SQUIBB.—The President has informed the Business Committee of his propositions, and also other members. Mr. Tufts has not informed them what his propositions are. When we get all the propositions before us, is the time to discuss the matter. No other propositions that I know of are in form, to make a change in the Constitution. They are all merely propositions. If a time be appointed to-morrow, when all the propositions are before the Association, it will take in this one to change the Constitution as well as the others; but this enables us to act upon that subject at any time we please.

Dr. Squibb read the proposed amendments to the Constitution, which contemplate, 1st, to abolish life membership; 2d, to raise the annual dues to three dollars; 3d, to charge for the certificate of membership five dollars; 4th, to have these certificates signed by *one* Vice-President, and 5th, to invite all members to relinquish voluntarily their right to life membership. He then continued—

We seem to be losing more by life memberships than we gain by new members. This is now simply notified as a proposed change which the Business Committee have to offer. This is all they have to offer at present. They may have others when they come before the Association.

The proposition, under the rules, lies over until a future session.

Dr. Squibb moved that when we adjourn, we adjourn to meet to-morrow morning at 9 o'clock. The motion was carried unanimously.

Vice-President Parrish read the annual address of the President.

TO THE AMERICAN PHARMACEUTICAL ASSOCIATION:

Gentlemen.—It is my pleasant duty, at this our fifteenth annual reunion, to offer you a word or two which custom and propriety shapes into an address from your chief retiring officer.

I recall, with mingled sentiments of wonder and gratitude, the interval which has elapsed since we last met in this city, and in this very hall. Wonder at the magnitude of the struggle which has engaged us as a people during that interval; gratitude for the result of that struggle, in uniting more firmly those elements of true national strength calculated to make ours a strong and enduring republican nationality.

In 1860, the year of our last meeting here, we were, as we now are, at peace; then fraternizing with us were valued members from the Carolinas to Texas. Who of us have seen them since? To-day I hope to grasp their hands once more, with double welcome, and a cordial sympathy, at least, in all earnest desire to promote the good of our chosen art.

Death has been busy in our ranks since 1860,—so much so, that the gain in numbers of members from this State, since, is not equal to the loss thereby. From the proper Committee you will learn of those who have left us since last we met. It is only proper for me to here bear respectful testimony to the untiring activity and courtesy of John Meakim, in executing the arrangements, social and otherwise, at that session of 1860.

The enlarged sphere of action naturally assumed by this Association since its inception,—as all questions relating to our art, in national polity, and affecting our interests nationally, of necessity fall into our hands for discussion and fostering care or development,—it is evident that the objects and duties of this Association must bear, henceforth, the same relation to the local Associations, and to the individual pharmacist, as does the general government to the local government and to the citizen.

Take the subject of internal revenue, wherein, aside from the tariff on foreign goods, the necessity of the time calls for a levying of specific and stamp taxes upon the various products of national industry; it becomes the manifest duty of this Association,—the only national representative of our art,—to use its influence and knowledge to place before the proper authority with whom lies the tax-placing power, such facts, statistics, and knowledge, as will tend to render our portion of the public burthen just and equitable.

At the meeting in Detroit, 1866, a Committee on Internal Revenue (the forerunner of a permanent one, it is to be hoped) was appointed to consider and act upon the whole subject of the internal revenue law. The appointment of such a committee was judicious, but unfortunately it was directed that your President should act as chairman of the Committee. Now as committee work is usually done by the chairman, and as the chairman in this instance resided far from the commercial and government centres, it was as good as an effectual shelving of the Committee. Your President, after appointing the members of the committee as required, resigned the chairmanship to one of them,—Mr. Parrish,—from whom I presume you may expect a report.

My suggestion is, in regard to the working machinery on this revenue business, the appointment of a committee, with the chairmanship at least continued or permanent; the chairman a resident of either Washington, Philadelphia, New York city or Boston; and the raising of sufficient special revenue to meet inevitable expenses attending the work of such a committee.

The above naturally leads me to the subject of our treasury and income. The report of the Treasurer of the Association will show you that the Association is in debt, and for years it has had to anticipate the resources of the future to cancel the obligations of the past. This is not as it should be; aside from the obloquy it casts upon us as individual members of the Association, it seriously embarrasses its officers and representative committees; and I wish distinctly to impress upon you that I believe our financial condition, and the settling of the question of fees and dues from members, to be the most important and vital subject for consideration and settlement before you at this meeting. Our independence, success, influence and dignity depend upon a treasury amply and promptly supplied with means to cancel its obligations, and extend its influence for good. You will remember the embarrassments arising from an empty treasury rest personally only on your permanent officials, and it is not just to them that, with hard work and no considerable pay, they should be placed in any such anomalous position. Moreover, if the Association expects to extend and make available its influence in correcting any abuses we as a craft may labor under, the result of unequal taxation, it must consent to tax itself freely in money. The duties of the Treasurer and Permanent Secretary, and of future possible permanent officers, are and will be so arduous, that no members can afford to accept them, requiring as they do such sacrifices of time and labor, without an approach to adequate pay.

Your Executive Committee, I believe, are prepared in their report with several plans with a view of increasing the revenue. My own idea is that we require a yearly income of not less than \$3000, and as near \$5000 as may be, to be raised by increasing the yearly dues to \$5.00, the entry fee to \$5.00, and the certificate \$5.00 or \$10.00; the payment of the debt now uncanceled to be raised by subscription among those most active members who have the welfare of the Association at heart.

I favor the repeal of Section eight, Article second of the Constitution relating to ten-year members.

While the Permanent Secretary has a very small remuneration, the Treasurer has none, save traveling expenses. The labor of this office is constantly growing, and is performed now only at the almost entire sacrifice of the leisure of the occupant. It is desirable that the office could remain in the hands of the same member year after year, for obvious reasons; yet you will soon find no competent member willing to undertake the labor for nothing but the honor thereof.

From the report of the Permanent Secretary you will learn, among other interesting matter, that your executive officers delegated representatives of the Association to attend the session of the International Congress of Pharmaceutists in Paris, in August, and it is hoped we shall have them returned to us in time to report in person the results of that Congress.

You will find the report of the Committee on the Progress of Pharmacy fully as extended and elaborate as have characterized former ones. The reporter of that Committee has taken much pains to avoid simple reference to subjects, in most cases having concisely given the most important information relating to those quoted. This, while there are less subjects referred to, renders it more valuable, and extends its length to about the length of that of last year.

The chairman of this Committee, and his predecessor, both suggest that this committee be made permanent. This I am not prepared to favor, on account of the fact that the investigation of scientific subjects, and committee work, like that on the progress of pharmacy, brings with it to the worker such a benefit of instruction, gratification and honor (when honorably done), as to fully compensate the member concerned, and that such labor should annually be re-distributed to others.

You will find the report of the Committee on the Drug Market replete with details of the foreign imports of our country, their values, articles rejected and reasons for rejection, together with much other collateral information, calculated to afford value to the report!

I would further suggest that a committee of not less than five members be appointed to arrange and present an exhaustive report on the articles exhibited by members of the Association and others, which exhibition is unusually full this year.

In closing this message, I have only to add that I have indicated those points of interest most vital to our continuance as a society; to your harmonious deliberations I now entrust them, and, in retiring from my position, I tender you my thanks for the honors this position has conferred, and the hearty assurance of my desire to coöperate with you in all efforts to further our professional interests and welfare.

FREDERICK STEARNS.

On motion, it was resolved that the President's address be referred to the Business Committee, so that the suggestions contained therein may be brought up for the action of the Association at the subsequent sessions.

On motion, the Association adjourned until Sept. 11th, at 9 o'clock A. M.

Second Session.—Wednesday, Sept. 11th.

Vice-President Prof. Edward Parrish called the meeting to order at 9½ o'clock, A. M. The Secretary read the minutes of the first session, which, on motion, were adopted.

Thos. S. Wiegand, Chairman, read the report of the Executive Committee, and J. M. Maisch the supplementary report of the Permanent Secretary.

REPORT OF THE EXECUTIVE COMMITTEE.

The Executive Committee respectfully report that the fourteenth volume of the Proceedings of your Association was issued early in the month of January, which, although nearly six weeks sooner than last year, is still far beyond the time the Association and both the officers charged with its publication have a right to expect. There are no good and sufficient reasons why other Associations of like character should be able to get out their Proceedings more expeditiously.

Want of funds, it must be remembered, will embarrass any work of expense; and the publishers would certainly have been enabled to hasten the work forward, had it been in their power to have offered funds as fast as work could have been executed. Some delay also was occasioned by one or more papers having been unfinished at the time the printers required them; this matter will be properly noticed by the Secretary, under whose care such papers must always be.

The cost of publishing the fourteenth volume has been about eleven hundred and sixty dollars, as will appear by the Treasurer's Report, and has been all paid in the usual manner.

The old plan of electing members *ad interim* having been abolished some years since, it has not been thought advisable to urge any persons to connect themselves with our Association, it being for obvious reasons preferable that those who are not anxious to join should not be associated with us. The means necessary to secure membership are so easily learned by reference to our publications, that all wishing to do so can consult them.

Death has been busy among our members during the past year. The Committee have heard of nine, but could learn the particulars of but few. Should any of our members know or hear of the demise of their fellow-members in their respective places of residence or sections of country, this Committee would feel under especial obligations for the information.

MR. THOMAS FARRINGTON, an honorary member of our Association, and one of the oldest apothecaries in Boston, has died during the year.

MR. JAMES B. LANE, of Fitchburg, Mass., died on the 27th of July, 1867, aged forty-nine years, after a painful illness. Those best acquainted with him represent him as a man of earnest impulses; a graduate of Dartmouth College, he always took a deep interest in promoting the cause of general education. He commenced his business career in Fitchburg in the year 1843, and connected himself with our Association in 1853.

MR. THOS. A. SWEETZER, of South Danvers, Mass., died October 24th, 1866, after a severe and protracted illness. His business education was conducted under S. W. Fowle, of Boston, and at one time he was connected with Wm. B. Little. His friends speak of him as a man of fine feelings,

and great earnestness of character. *He always manifested great interest in matters of public concern, but his greatest pleasure seemed to be in literary pursuits, with which he was much occupied.

JAMES H. ANDERSON, M. D., of New York city, died since our last meeting. He was of Irish birth, and learned his business before coming to this country. He was employed by the late Wm. J. Oliffe for twelve years, and after that studied medicine. He was elected a member of our Association in 1859. His friends found him genial and frank in his intercourse. His disease was hæmoptysis.

MR. HENRY KING, of New York, died in April, 1867. He was a native of Connecticut, and learned his business with E. W. Bull, of Hartford; commenced his business life in New York in partnership with Mr. Thos. T. Green. In 1847 he became a clerk with Rushton Clark & Co., attaining to a partnership with Hegeman & Co. in 1854. He was connected with this house and its predecessors for twenty years. His membership with us dates from 1858. His uniform politeness and kindness made him a favorite with his friends and acquaintances, all of whom esteemed him as a man of untiring energy, perfect integrity, and thorough acquaintance with his profession.

JESSE M. SANDS, of New York, after passing many years as student of his business, and clerk for various parties, engaged about fourteen years since in business for himself. He was an excellent pharmacist, and was held in esteem by his acquaintances for his correct principles. His death took place at Saratoga Springs, where he had gone for a few days' relaxation, on the 19th of August, 1867, in the 49th year of his age. He had been a member of our Association since 1860.

MR. HARMAR D. SCULLY, of Pittsburg, has died since our last meeting, but no particulars have been supplied to this Committee.

MR. WM. B. LITTLE, of Panama, Central America, died there of yellow fever while acting as Consul of the United States. His earlier life was passed at Boston, whence he removed to San Francisco, Cal. His acquaintances testify to his gentlemanly character, and correct business habits. He has been associated with us since 1857.

MR. JAS. L. POLHEMUS, of Sacramento, Cal., has died during the year, having been elected at our last annual meeting.

The report of our Permanent Secretary must be referred to for much of the matter which it has been customary to allude to in this report, to repeat which would be useless.

In concluding, the Chairman would most sincerely tender his thanks to the Permanent Secretary, Treasurer, and several of our members, whose constant courtesy and prompt attention to every call has rendered his labors so light and pleasant.

On behalf of the Committee,

THOS. S. WIEGAND, *Chairman*.

To the Chairman of the Executive Committee of the American Pharmaceutical Association.

The Permanent Secretary respectfully reports that the proceedings of the Association at the fourteenth Annual Meeting were published and ready for distribution during the first part of January. Although this was about two months ahead of the time of several preceding years, it is believed that the period of publication could be materially shortened, if the causes pointed out last year were removed; the main causes of the delay are unfinished papers and want of funds.

The distribution took place in the usual manner, by mail and through the kindness of some members in the larger cities, each member not in arrears with his annual contribution for two or more years, receiving one bound copy.

In November last, the Secretary addressed a circular to all members of the Association who were supposed to have been prevented from sharing in its benefits by the late war, asking them to correspond at once with the Secretary or Treasurer, in compliance with the resolution passed at Detroit at the fourth session. Those who had not responded, were again notified last July.

The list of Societies and Libraries to whom complimentary copies of the proceedings are forwarded, has been considerably enlarged. Various Institutions and Associations had their sets of proceedings completed, and a few new Journals have been received in exchange.

The stock of Proceedings on hand is as follows:

	Paper Covers.	Bound.	Loose.
1851 . . .	380		
1852 . . .	189		
1853 . . .	184		
1854 . . .	10		
1855 . . .	195		
1856 . . .	1		
1857 . . .	275	22	
1858 . . .	80	8	212
1859 . . .	—	84	
1860 . . .	—	262	
1862 . . .	—	305	
1863 . . .	—	291	
1864 . . .	204	66	
1865 . . .	199	56	
1866 . . .	111	87	

Besides the above, a number of volumes have been sent to the present meeting, and others are still in the hands of private parties in some of the large cities.

The insurance on the stock was allowed to remain the same as last year, namely \$2,500, for which a premium of \$17 50 has been paid to the New Amsterdam Fire Insurance Company.

The Permanent Secretary has received for Proceedings sold since last meeting the sum of \$75 51, which amount was paid over to the Treasurer. Besides his salary, the expenses of the Secretary during the last year, were as follows:

For Wood Cut for Proceedings, 1865,	\$ 6 00
" Postage Stamps,	68 36
" Cartage and Freight,	48 61
" Packing Boxes,	8 58
" Portorage of Proceedings in Philadelphia,	3 00
" Expenses in Collecting,	2 00
" Telegrams,	7 05
" Packing Paper, Twine, Nails, &c.	1 96
" Engrossing Credentials,	5 00
" Circulars and Addresses,	5 25
" Two U. S. Pharmacopœias,	1 80
" Insurance,	17 50
Total,	\$175 11

The number of resignations received up to the time of publication of last year's Proceedings was three, and the names of thirty-one members were dropped from the roll; of the latter number, two hold certificates of membership, their present place of residence being unknown, namely, Jacob F. Haehnlen, Jr., formerly of Pittsburg, Pa., and Robert Hall, formerly of San Francisco, Cal.

Since last meeting, the resignation of Robert Thompson, of Chicago, Ill., has been received.

The Permanent Secretary would call attention to the fact that the Proceedings for 1854 and 1856 are nearly out of print, there being but ten copies of the former and but one copy of 1856 in his possession; he would request all members having copies in their possession to return them to him. Reprinting the same does not appear to be advisable at present.

Respectfully submitted,

JOHN M. MAISCH,

Permanent Secretary.

MR. MAISCH.—We bought two copies of the American Pharmacopœia to send to two Societies. We received a copy of the Pharmacopœia of Switzerland, and thought proper to send ours in exchange; also to the Pharmaceutical Association of St. Petersburg, of Russia, with whom we have entered into correspondence.

Both reports were, on motion, accepted.

The Treasurer's annual report was read by Charles A. Tufts, as follows:

To the Officers and Members of the American Pharmaceutical Association.

Agreeable to the requirements of our Constitution, I herewith present

the report of my office for the past year. The bills against the Association are all paid, so far as I have any knowledge of them, and there is a balance in my hands of \$423.39. I have not received as large an amount of income as in the previous year, which is accounted for by the fact that at the meeting in Boston, in 1865, an assessment of one dollar was voted to be paid by each member of the Association in 1866, and our expenditures have not been as large this year as in the preceding one.

As has been the practice in previous years, I have been obliged to pay the expenses of the year 1866-67 by using the funds of 1867-68, and this course will have to be followed each year until the Association adopt some plan whereby it can have at the beginning of each fiscal year an amount of funds on hand to pay its expenses for the year. In my report last year, I stated that we ought to have not less than \$1200 on hand at the beginning of each year. I now think I stated the amount too low, and am satisfied, from another year's experience, that \$1500 is as small an amount as would enable the executive officers of the Association to meet its liabilities in an honorable and economical manner.

There are now on the books of the Association 828 names of members. Of this number 165 members have paid ten annual contributions, and are life or non-contributing members. Deducting the life members, we have 663 contributing members. Of this latter number 102 members owe dues for three years or more, and are liable to suspension for the non-payment thereof. If the dues of these delinquents are not paid before the publication of the proceedings, the executive officers should proceed in regard to them agreeable to the rules of the Association.

The Association was formed by nine members in 1852. Those members in 1862 ceased to be contributing members; but that year 35 new members joined the Association, and more have joined each year than the number who have become life members. Last year 64 members joined the Association, and 29 became life members. The Association will perceive that the time will soon come, if it has not already arrived, when our funds will become stationary, while our expenses are largely increasing. Our Proceedings have cost this year about \$1.42 each, and we give each member the volume of Proceedings. The 165 volumes given to life members cost the Association \$234.30, and it realizes only 58 cents more than the volume costs from those who are contributing members; and whereas in the earlier years of the Association the Proceedings cost 25 cents each, and now cost \$1.42 each, with very little comparative increase of income, the Association can judge whether it can afford to make the present distribution of the Proceedings at the largely increased price of publication.

I present these facts for the consideration of the Association, deeming it of vital importance at the present meeting that the subject of our finances be carefully considered, and I would urge upon the Association to adopt such measures as will relieve the executive officers of the Asso-

ciation from the unpleasant position in which they find themselves each year. The Treasurer does not propose any plan to meet the emergency, but would suggest that a special Committee be appointed to take the whole subject of finance into consideration, and to report such change in the Constitution as will hereafter relieve us of our present financial difficulties.

The labor to be performed by the Treasurer is much more than I suspected when I accepted the office, and it will constantly increase. I have found it more this year than it was the previous year. While there are so many different accounts, and where there are members of similar names, but residing in different localities, and names with the same pronunciation but spelt differently, errors will creep in, notwithstanding all the care one actively engaged in business can bestow. It has been my aim to avoid all errors, if possible so to do, and I trust I have succeeded as well as could be reasonably expected.

I would tender my thanks to the members of the Association who have greatly assisted me during the past year, and to all the members of the Association with whom I have had official intercourse, for the uniform courtesy with which I have been treated.

CHARLES A. TUFTS, *Treasurer.*

Statement of Receipts and Disbursements of the American Pharmaceutical Association for the Year ending September 7th, 1867.

RECEIPTS.

1866.					
Aug. 22.	To balance on hand, as per last Report,	.	.	.	\$617 58
1867.					
Sept. 7.	" amount received for Contributions,	.	.	.	1012 00
	" " " from sale of Proceedings,	.	.	.	109 41
	" " " " " Certificates,	.	.	.	175 00
					<hr/>
					\$2013 99

DISBURSEMENTS.

1866.					
Aug. 24.	No. 1.	John M. Maisch, Expenses,	.	.	\$ 46 00
Sept. 3.	" 2.	James H. Slade, Phonographic Report,	.	.	104 25
	" 3.	Chas. A. Tufts, Expenses,	.	.	55 60
Nov. 2.	" 4.	Thos. S. Wiegand, Chairman Exec. Com.,	.	.	400 00
Dec. 17.	" 5.	" " "	.	.	200 00
1867.					
Feby. 2.	" 6.	John M. Maisch, Expenses,	.	.	123 06
28.	" 7.	Thos. S. Wiegand, Chairman Exec. Com.,	.	.	100 00
April 13.	" 8.	John M. Maisch, Expenses,	.	.	19 99
May 13.	" 9.	Thos. S. Wiegand, Chairman Exec. Com.,	.	.	150 00
July 29.	" 10.	John M. Maisch, Expenses,	.	.	17 90
					<hr/>
		Carried forward,	.	.	\$1216 80

	Brought forward,		\$1216 80
Aug. 3.	No. 11. Thos. S. Wiegand, Chairman Exec. Com.,		75 00
26.	" 12. " "		100 00
28.	" 13. " "		13 15
Sept. 5.	" 14. John M. Maisch, Expenses,		114 16
" 7.	" 15. Chas. A. Tufts, Miscellaneous,		29 11
	" 16. " Postage,		42 38
			1590 60
Sept. 7.	By balance cash on hand to date		423 39
			\$2013 99
E. E.	All which is respectfully submitted.		

CHAS. A. TUFTS, *Treasurer.*

MR. TUFTS.—I have been requested to make some recommendation in regard to raising more money, but I preferred to leave that to the Association. I would state, as an apology for the delay in answering letters, that my business engagements have been such that the work for the Association I have had to do at my own home; and there has been such a large amount of correspondence that it has been impossible for me even to answer letters as I would wish to do, so far as promptness is concerned. One day I recollect receiving twenty-nine letters, all requiring an answer. You can judge, therefore, that I have had a good deal to do in my odd hours, and my postage account of \$42 will show that there has been considerable labor connected with that department.

On motion, the report was accepted, and the Treasurer's accounts referred to an Auditing Committee, on which duty the President appointed the following members: Henry Haviland, of New York; J. Faris Moore, of Baltimore; and A. P. Melzar, of Boston.

The Nominating Committee presented a report, containing the following nominations of officers for the ensuing year:

For President,

Dr. E. R. SQUIBB, . . . Brooklyn, N. Y.

For Vice-Presidents,

1st. ROBERT J. BROWN, . . . Leavenworth, Kansas.

2d. N. HYNSON JENNINGS, . . . Baltimore, Md.

3d. DANIEL HENCHMAN, . . . Boston, Mass.

For Treasurer,

CHARLES A. TUFTS, . . . Dover, N. H.

For Permanent Secretary,

PROF. JOHN M. MAISCH, . . . Philadelphia, Pa.

Executive Committee,

THOMAS S. WIEGAND, Chairman,	Philadelphia, Pa.
JAMES W. MILL,	Chicago, Ill.
WILLIAM WRIGHT, Jr.,	New York.
W. J. M. GORDON,	Cincinnati, O.
Prof. JOHN M. MAISCH, ex officio,	Philadelphia, Pa.

Committee on the Progress of Pharmacy,

C. LEWIS DIEHL, Chairman,	Louisville, Ky.
N. GRAY BARTLETT,	Keokuk, Iowa.
G. F. H. MARKOE,	Boston, Mass.
Prof. P. W. BEDFORD,	New York.

Local Secretary, ex officio.

Committee on the Drug Market,

DANIEL C. ROBBINS, Chairman,	New York.
JAMES T. SHINN,	Philadelphia, Pa.
HENRY W. FULLER,	Chicago, Ill.
J. JACOB THOMSEN,	Baltimore, Md.
SAMUEL M. COLCORD,	Boston, Mass.

Committee on Scientific Queries,

Prof. W. PROCTER, Jr., Chairman,	Philadelphia, Pa.
Prof. EDWARD PARRISH,	Philadelphia, Pa.
G. G. C. SIMMS,	Washington, D. C.

Business Committee,

ALFRED B. TAYLOR, Chairman,	Philadelphia, Pa.
JAMES T. KING,	Middletown, N. Y.
GEORGE C. CLOSE,	Brooklyn, N. Y.

Pending the consideration of the motion on the acceptance of the report, Dr. Squibb rose and said :

I beg the favor of the Nominating Committee to substitute some name for that of Prof. Procter, on the Committee on Queries. It is an especial request of his to me, that he be relieved from duty on committees this year. As we know when he says a thing he is really desirous of it, I think the Association owe it to him to grant that. We can depend upon him just as well off as on that Committee. I think it would be just to relieve him, as he asks, from any committee duty this year. He feels that he has got a good deal of work ahead of him to work up for the Association, as well as for himself, and he will come home with a large load on his shoulders, and would think it an addition to that load to have any-

thing placed upon him by the Association this year. I think, as far as I can judge, it is the duty of the Association to relieve him.

MR. CLOSE.—The Committee were not aware of any such request; if they had been, his name would not have been put on.

DR. SQUIBB.—I thought best to mention it to the Association.

MR. CLOSE.—I propose Mr. Maisch.

MR. MAISCH.—I have no objection to serving on that Committee, but I think it will be better to substitute some other member.

DR. SQUIBB.—I think the Association will be willing to see Prof. Parrish at the head of that Committee, and place another name at the end of the Committee. The Constitution says it shall consist of three members. The name of Mr. Maisch might be added to the end of the list, to have him aid in case of any queries occurring to him.

MR. MAISCH.—I have no objection to serving in that capacity.

MR. PARRISH.—I would not have a particle of objection to being Chairman of that Committee, if I thought I possessed the ability to get up the queries.

DR. SQUIBB.—Mr. Parrish is so near to Professor Procter that I have no doubt he will aid him, although he desires to be relieved from the weight of being Chairman of it.

PROF. PARRISH.—From my knowledge of Prof. Procter and the Association, I think he is the only man in it that can get up these queries. It is always a source of amazement to me how he gets hold of them.

DR. SQUIBB.—The Committee have done me the honor to nominate me as President for the ensuing year. I must earnestly and honestly decline to accept that place. I am a good deal over-run with occupations. I am willing to work for the Society, and can, as Chairman of the Business Committee, but as President I should be out of place. I am not a practical pharmacist, in the first place. We desire, and should have no other; and we should desire to place the honor of such a position upon the older members of the pharmaceutical profession, more especially. I must absolutely decline this nomination, without any hesitancy whatever; and I wish the Committee would either nominate some other member, or let me appoint or nominate a substitute, which I would be very willing to do. I am very much obliged to the Nominating Committee, and, presuming the Association would elect me if I were placed in nomination, I am very much obliged to the Association, although it might be said, "you had better wait until you were elected before you thank those who elected you;" but still I think we may take it for granted that the nominee of the Committee would be elected. I would suggest, as a substitute, a gentleman whom we all would like to see at the head of this Association,—John Milhau, of this city.

MR. MILHAU.—I thank Dr. Squibb for his nomination of myself, but I should be out of place. I am too old. Besides, we believe that he is bound in this instance to comply with our wishes. Every pharmacist

in New York desires that Dr. Squibb should be the President of this Society, and I believe the well-being of the Society requires that he take that place.

MR. TAYLOR.—It was the unanimous desire of the Nominating Committee that Dr. Squibb should serve. So far as I have heard the sentiment of the Association, it is the unanimous wish of the Association. I hope he will consent to serve.

DR. SQUIBB.—It is extremely gratifying to me to hear this expression of kind feeling towards me, and to be paid the compliment of supposing that I would be able to manage the affairs of this Association through the coming year. It is extremely gratifying, and I admit I would do it to the best of my ability, and probably well enough. I don't wish to take any credit for over-modesty. I am placed in a peculiar situation, that few others than myself can well appreciate. I have declined within the past few years the Presidency of several important medical associations. I declined them for similar reasons, and I could not accept this Presidency under present circumstances. If the Association will relieve me I shall be very much obliged to it, and will try to work hard for it. I would rather accept any office in the gift of the Association than that of President. I have now the Chairmanship of the Business Committee, and if the Association will be willing to accept me in that capacity in place of the nominee of the Committee, I am ready to crowd him out, and go on in that position as long as I belong to the Association.

MR. TAYLOR.—The only matter of regret to me in the Committee was in regard to myself. All the members of the Committee thought I ought to take the place of Dr. Squibb on that Committee.

MR. PARRISH.—This is the first time we have ever had in the Association a public competition for any office.

DR. SQUIBB.—I am averse to taking up more time with a matter which will be fruitless. I cannot accept the position with justice to myself or the Association. I don't wish this to be attributed to any wrong motive; I don't decline in any improper spirit. I hope the Nominating Committee will now supply a name, and let us go on.

The Nominating Committee then presented the following alterations of the original report:

For President,

JOHN MILHAU, New York City.

Committee on Scientific Queries,

Prof. E. PARRISH, Chairman, . . . Philadelphia, Pa.

G. G. C. SIMMS, Washington, D. C.

Prof. J. M. MAISCH, Philadelphia, Pa.

Business Committee,

Dr. E. R. SQUIBB, Chairman, . . . Brooklyn, N. Y.
 JAMES T. KING, . . . Middletown, N. Y.
 GEO. C. CLOSE, . . . Brooklyn, N. Y.

MR. MILHAU.—I am an invalid and am too old. Dr. Squibb may depend upon every member of the Association to assist him in the office of President, if he will accept the position. I think the Association requires his presidency. I have undertaken, as president of a college of pharmacy, to get a law passed which will vastly benefit the profession, that there should be a better regulation adopted in regard to apothecaries in this State. That will occupy me very much. Dr. Squibb must make a sacrifice. I have consented to be President of the College of Pharmacy, merely because I supposed I could do some little good.

DR. SQUIBB.—It is due to Mr. Milhau to say in this connection that when asked by one of the members of the Nominating Committee if I would serve in this office, I said it was not my province to answer whether I would serve as President until I found whether I would be elected or not; but if he wanted to know whether I would allow myself to be nominated, I would say no; I would object to it, and could not serve, and stated my reasons. Then the Nominating Committee were obliged to take into consideration who should be the nominee in case I should not serve. They fixed upon Mr. Milhau. This nomination is not made as a mere filling up of a gap, but it is a preconcerted thing. I hope he will accept the Presidency, and I will promise to help him all I can. I will take all the labor he will put upon me, if he will take the office. We are both honest in what we say.

MR. MILHAU.—I feel that the Association would lose very much if I were to accept the office of the Presidency.

PROF. PARRISH.—We have a good many offices which require work. The Presidency is an office of honor, and I judge that the Nominating Committee have had that view of the subject. If Dr. Squibb persists in declining the office, I hope our friend Milhau will accept. His very efficient Vice-Presidents can preside at these meetings, if he prefers. They are present, I believe, and it is quite our custom to have the aid of the Vice-Presidents in this capacity. Still I would be very far from pressing anything on our friend, if he feels compelled to decline.

DR. SQUIBB.—If it be the pleasure of the Association to elect Mr. Milhau, I will aid him in carrying on the business of this session all I can. I think we can relieve him of everything except presiding at the meetings. I want him to be President, and I think we will all try to relieve him of any arduousness. I accept as a sufficient apology, that he considers himself too old to be very active, although many of us know that he is pretty active, and that his assiduity is somewhat against his health as an invalid;

yet the mere presiding at this convention is not a very laborious task, if we take the labor of it. In all other matters, there is abundant disposition to relieve him, and I hope he will accede and allow the Association to elect him. He is *the* man of this locality, and I think the Nominating Committee are exactly right in their nomination. He stands at our head here, has been President of a College of Pharmacy, and been active since the very inception of this Association, and it is unwise in us to pass him by and elect another man as President, if he will consent to serve. I feel in the same way in regard to him as he feels in regard to me, only I feel the Association have claims upon him that they have not upon me, and I would rather see this position conferred upon Mr. Milhau.

MR. PARRISH.—The remark I made in regard to Vice-Presidents had reference to long sessions of the Association only.

On motion, the report of the Nominating Committee, as amended, was accepted.

MR. MAISCH.—I wish to ask for some information. The permanent Secretary was elected in 1865. Last year the name of the old incumbent of that office was again reported. I overlooked the matter at that time, but in printing the proceedings I left that name off, thinking that, by the terms of the Constitution, that officer was elected only once, until such time as he should be retired by desire of the Association, or by resignation. I see my name is again reported as Permanent Secretary, and I wish to ask, is it proper to elect the same man every year *permanent* Secretary?

DR. SQUIBB.—That question came up last year, and it was decided by the Nominating Committee that the name be reported each year, for the purpose of bringing it before the Association, if they desired to change. It is the only way in which he can be changed. It was argued when it was proposed to make the Treasurer a permanent officer, that it was practically the same thing as a new election each year, as his name came before the meeting each year.

Pending a motion to proceed to ballot for President, an amendment was made by Thos. A. Lancaster, of Philadelphia, to ballot for all officers at once. The question being put on the amendment, the Chair declared it lost, when the question recurring on the original motion, it was adopted.

The Chair appointed the following Tellers: J. J. Thomsen, of Baltimore, and W. J. M. Gordon, of Cincinnati, who reported the unanimous election of Mr. John Milhau, of New York, President for the ensuing year.

During the counting of the votes, the Business Committee gave notice of the proposed alteration of Art. II. Section 1 of

the Constitution, contemplating the eligibility to membership in the Association of Professors of Pharmacy, Materia Medica, Botany and Chemistry. The proposition, under the rules, lies over until a future session.

It was now moved, and carried unanimously, that the Chair be directed to deposit an affirmative vote for the remaining officers, after which the Tellers reported the unanimous election of all the remaining officers nominated to serve for the ensuing year.

The Chair appointed Henry T. Kiersted, of New York, and Dr. E. R. Squibb, of Brooklyn, a Committee to conduct the President elect to the chair. The Committee attended to this duty, the Association rising and listening attentively to the following remarks, and the words of welcoming the Association to the City of New York, by the venerable President on taking the Chair.

MR. MILHAU.—I thank you for this evidence of your kind feeling. I am afraid you have made a bad bargain. However, I have my friend here, who said he would give me help. I know he is honest in all he says, and therefore, whenever I am deficient, I will call upon him. I must welcome you all to New York, as President of an Association that you must all consider is friendly to this. I can say that every member of that Association will be ready, whenever any of you find yourselves in difficulty, to assist you; all you have to ask is, whether a man belongs to the College of Pharmacy of the City of New York, and in one who does you will find a friend ever willing to aid you.

We have in our programme a great many things which will require the assistance of all of us, far and near. We have the internal revenue; the duties imposed upon medicines for which we cannot substitute any of our native plants. We have a great many things of that kind, which will demand our attention. I hope we shall be able to do justice to the subject, and prevail upon those gentlemen in Washington to listen to us. We have a duty upon alcohol, which enters into the composition of all our medicines, which is ten times higher than it should be; and, inasmuch as the Government does not receive any pecuniary benefit from it, or very little, and a number of persons, who cannot be called good Americans, are now profiting by their want of honesty, in not transmitting to the Government what is its dues, I think, if we get up a petition, we may get at least that tax reduced. It is essential that it should be reduced. Why should the poor be obliged to pay ten times more for their medicines than before? To the rich it matters not. That is an argument we can use in a Government like ours.

I am quite at a loss how to allude to the many valuable hints that have been given by those gentlemen who individually deserve our thanks for the diligence they have shown. It will be our duty first of all to get out of debt. I don't want to belong to a Society that is in debt. We must be able to pay as we go along, and that can only be done by allowing ourselves to pay a small tax—very small indeed—for our membership is so large as to enable us, with very little individual contribution, at least to relieve our officers, who kindly accept their duties, and who ought not to be embarrassed by being unable to pay as they go along. I have nothing more to say except that I will do my best in the position to which you have elected me, although I fear that that will be very little indeed.

The Business Committee moved the thanks of the Association to the retiring President, Fred. Stearns, and all the retiring officers, for the efficient performance of their respective duties.

DR. SQUIBB.—I would like to say one word in regard to Mr. Stearns. He has suffered from his services to the Association during the past year, and is not now with us because of his self-sacrifice in laboring for some of the interests of this Association. I desire that this should be specially mentioned to the Association, that in our thanks, I trust, we will not forget our absent President, Mr. Stearns.

The motion was carried unanimously.

The report of the Committee on the Progress of Pharmacy being called for, the Chairman, C. Lewis Diehl, read extracts from it, and explained the general arrangement, which is similar to that of preceding years. The report was, on motion, accepted, and referred to the Executive Committee for publication.

The chairman Wm. A. Brewer, read the report of the Committee on the Drug Market, after which a supplementary report was read by Samuel M. Colcord. Both reports were, on motion, accepted and referred to the Executive Committee for publication.

MR. COLCORD. That article of Cod Liver Oil is sold in the market under the name of medicine oil, and a medicine oil is composed of olive oil and cod liver oil. They use that term on the bottles. I offer these prices for the sake of the association, making a national understanding of the ways in which these articles are used in the market. Attached to the table of values incorporated into this report, I thought it would be interesting to put opposite to each article the duties, so you will see the value of the year and the duty it has paid. Every article is put down by the duty and generally those articles that are rated carry a class with them; for instance, if sal soda, it will carry the class of all its compounds.

DR. SQUIBB. It is true, as is assumed by the chairman of the Committee on the Drug Market, that there is no instruction to that committee in regard to the character of their labors in carrying out that committee. A committee on adulterations was once proposed, and the preamble proposed what its labors should be, but, so far as I know, there is no instruction, as stated by the chairman of this committee, as to what their labors should be. It is competent for the Association to order what this report shall be, but, on consideration, I feel satisfied to leave the matter as it is; if we let them select their plan of operations, it will be much more likely to produce the admirable results of this morning, than if we compel them to follow any particular course of procedure. Let the committee use its own judgment. I would favor leaving the thing just as it is, entirely with the committee on the drug market. One other suggestion I would like to make. The chairman of that committee, in the labors connected with it, seems to have omitted one single point, in regard to the low class of articles imported during the blockade-running times. If my attention was not abstracted, he makes no allusion to the sales of seizures; that those drugs which were intended for the Southern markets and placed on board those vessels at low prices in consequence of the risk of being seized, were seized and sold by the government authorities in the markets in which the vessels were adjudicated. There was a pretty large quantity of that kind of drugs sold here at auction, and being sold in that way, they got into the markets without passing through the form of inspection which the foreign goods generally do.

PROF. PARRISH. That is a very important suggestion, and I think it would have been well to have embodied it in the report. The medicines were distributed through the community, and who is taking them I don't know. I hope I shall not take any. There was sulphate of quinine in the market which had no quinine in it at all. It was nothing but man-nite. Other things were nearly in the same ratio—misrepresented by their labels.

DR. SQUIBB. Would the chairman of the committee accept the suggestion that these statements be embodied in his report before it goes to the Executive Committee?

THE PRESIDENT. You might ascertain the region of the sales; perhaps if you can it would be so much the better.

MR. BREWER. I would suggest that our committee on publication can introduce an effective paragraph there, which will have all the moral effect on the community, if not the physical effect, we desire.

DR. SQUIBB. I should rather see that done by the chairman of the committee. The chairman might make an asterisk paragraph. I am not interfering with the publication of the proceedings, but would like to have that suggestion, if it be agreeable to the chairman of the committee, made in the report.

MR. BREWER. With the consent of the other members, I will do so.

DR. SQUIBB. Another point is the discrepancy between the Philadelphia portion of the report, and the chairman's own report in regard to alcohol. He makes the statement that it has been sold generally within a shade of the government tax. In the Philadelphia report, embodied by him afterward, the statement is made that it is sold in other markets than Philadelphia, at much lower than the tax. He simply says within a shade of the tax. It has been my experience that it has been sold greatly below that; that the prices have varied from \$2.85 to \$3.85, but that it could be rarely bought at higher prices than \$3.80-3.85. When we consider that \$4 nearly, is the government tax, that is hardly a "shade." But the majority of the sales have been less than \$3.80, and perhaps in a large proportion of cases, \$3.60, and in some instances as low as \$3.40 and \$3.20.

THE PRESIDENT. \$3.10 I have known.

DR. SQUIBB. There are all limits, and this is understood to be government branded alcohol, with the certificates going with it in all cases. I should like to see this discrepancy set right between the two portions of the report, because Mr. Colcord's report has so much latitude in it, that it takes in the whole scale.

MR. COLCORD. I quoted the whole market at which it sold, and it has varied all that way.

MR. TUFTS. I want to make one suggestion regarding bismuth, that the high price was from a failure of one of the mines. It has also been affected by the large quantity of bismuth used in a fine quality of type to give hardness to the surface, the letters wearing much longer when made with bismuth than with ordinary letters. Most of the bismuth comes from the old country. There are mines in which it is produced pure, and in this country there have been mines discovered, particularly recently in California, which are very valuable in bismuth, and it appeared to me very singular that our countrymen should not, with the high price of this article, work these mines to profit, and if these mines are properly investigated and worked, the price of bismuth would be greatly reduced from what it is now.

DR. SQUIBB. I would suggest that it is desirable that this report should be held over a little while for a discussion of these subjects. I see there are many gentlemen who would like to make remarks.

MR. MAISCH. The chairman of the committee on the drug market made a statement that ant's eggs had been formerly official for the preparation of the spirit of ants. It is the ants themselves that have been and are still used for preparing that spirit, and ant's eggs have only been used as a food for certain kinds of birds. It may, however, be that some two or three hundred years ago they may have been official. I don't remember whether the report of the Philadelphia market noticed the

adulterations of assafoetida and myrrh. There was a large amount of assafoetida, a specimen of which is now in the Philadelphia College of Pharmacy. which consists solely of sulphate of lime agglutinated together by a resinous preparation of assafoetida. How the substance is prepared, I am unable to say. Apparently it is a very fine specimen of assafoetida, but when more closely examined, it is found to be a little resinous matter on the outside, while the inside consists entirely of sulphate of lime. I have been informed that there have been large quantities of that article in the Philadelphia market. There is likewise an adulteration of myrrh; a considerable portion of myrrh in original cases, containing some substance which to all outward appearances was myrrh; it smelt like it, from having been in contact with it for considerable time; the pieces were large, much larger than myrrh usually comes in and more globular. To the best of my knowledge its ingredients have not been examined, but it appears as if it was made up like the assafoetida, consisting chiefly of gypsum. In this connection, I would likewise make a remark in regard to Mr. Colcord's report, where he speaks of the article of tartaric acid which is in the market and which claims to come from the government laboratory, and which —

DR. SQUIBB. From the government prize sales; not from the laboratory.

MR. COLCORD. It came into the market from the government sales at the close of the war.

DR. SQUIBB. I know the lot, and know that it was from some of those prize sales.

MR. MATSCH. He said it had been sold by the government, and I supposed the laboratory was meant.

MR. BREWER. I will say in explanation that the epithet "official" was not used in respect to ant's eggs. I look upon it as the best of the articles of a proprietary character, perhaps, and these ant's eggs contain ants in embryo, some of them nearly matured, ready for emerging, and so might be used for that purpose, although I am aware that a very large use of them has been for many years as bird's food.

MR. MARKOE. In regard to the scarcity of bismuth, the principal cause is the greatly increased consumption in making cosmetics. I saw the statement in one of the foreign journals that it was largely used for this purpose. I know very well that in Boston its use has very largely increased. We sell more for that purpose than any other.

MR. MATSCH. Some of the manufacturers of cosmetics have lately improved on the base of their cosmetics. A great many "blooms of youth" consist of carbonate of lead.

DR. SQUIBB. The uses of bismuth increase like the uses of every other metal. The increased demand being greater than the increased supply, the price remains high. In regard to the increased use, spoken of by

Mr. Tufts, in the preparation of type metal—it has always been used in type metal; it is used not more now than formerly, only type are more used, and the Saxon mines have not been able to supply the demand. I rose to make one statement in regard to a very interesting subject alluded to in both reports, namely, the use of cryolite in the production of soda salts. This substance is found in Greenland, and its mining has been monopolized by the Pennsylvania Salt Co., who convert it into soda salts. It consists of a double fluoride of aluminium and sodium; the sodium is easily separated by a simple process, and it has formed a staple product with the company; they have now succeeded in entirely monopolizing all that can be imported into this country. They manufacture it into the various salts of soda, and hope at some day to supply the demands of this country with soda salts from it, the great drawback being the cost of transportation of the cryolite out to their works in Western Pennsylvania at West Tarentum, where they have to reject the fluoride of aluminium; therefore they have to transport that and then find it useless; the small proportion that has been used in the production of hydrofluoric acid and other purposes has been so small, that it has not remunerated them for its separation; the quantity they are enabled to sell being so small. The sodium from this double fluoride has taken the place of sodium from common salt. This company was first formed as an oil company, but afterwards turned their attention to chloride of sodium as a basis of all soda salts. They are now manufacturing very largely of soda. Other manufacturers in this neighborhood and on the sea-board have been able to compete with that company by using chloride of sodium, and a large proportion of the soda salts now substituted for potassa salts are from chloride of sodium used in competition with this cryolite, only because they have to pay so much on the transportation of that article. There is a large manufacture of soda salts in this neighborhood—and all along the sea-board they are greatly increasing in number and size, which produce soda salts rapidly, replacing the potassa salts; the latter are being replaced because the markets for potashes are more remunerative abroad. In the time of our currency difficulties here, it had been found valuable as an export to a far greater extent than ever before, because it replaced so much money going out of the country to buy imports. This has been one of the causes which has induced the manufacture and the replacing of those salts quietly by soda salts, without the community knowing the difference, and it has been the same story in regard to soda salts as it was in regard to replacing the common alum by ammonia alum; while the common alum is seldom found in the market, so baking powders are being converted into soda without the community knowing the change.

PROF. PARRISH. I was about to remark on this subject of cryolite, that one of the principal uses of cryolite at this time is for the manufacture of glass; instead of making a transparent glass it makes a white

glass, resembling arsenic glass formerly sold, and as a substitute for that article. In the meantime a patent has been taken out for what is called hot cast porcelain, made from cryolite, identical with the glass from cryolite, and this making of glass will probably be stopped under this patent, or, rather, I understand the company operates the patent for hot cast porcelain, and have a contract with the importers for all cryolite imported to be used for that purpose, to compete with that patent.

MR. MAISCH. Is it cryolite or the fluoride of aluminium? I don't think that the cryolite itself would answer without using an additional quantity of sand and alkali with it. Cryolite not being very cheap, I cannot see how it would economize the manufacture of glass.

MR. ELLIS. I had a few notes on this subject which have been rather anticipated, but to-morrow I shall have a specimen of the salt and also of this hot cast porcelain. I merely have a few words thrown together hastily before leaving home.

PROF. PARRISH. So far as I am able to judge, it is a very poor kind of a substance for anything like porcelain; the name is a very happy hit, but I don't think it is any more like porcelain than common glass.

DR. SQUIBB. I intended to mention, but forgot it, in connection with this production of soda salts, that none of us can estimate its importance, so largely is it involved in the progress of the arts and the domestic uses of civilized life. The profits of these companies who are now producing these soda salts are so great that they conspire to keep the tariff up upon soda salts from abroad, and in the testimony I had to give before the committee on ways and means at the last session of Congress. I found the interests of these manufacturers was so great that it was impossible to offer any testimony that would be received as effective upon the reduction of the tariff on soda salts. It was useless for any one to go there and say carbonate of soda should not be taxed, to maintain our own manufactures of it, so long as these manufacturers could only supply one-sixth of the whole quantity used, and that a tax on every consumer in the country to support the manufacture of one-sixth of the product that was required to supply the demand was unjust. These facts did not seem to have any effect upon the committee, so strong were the influences of these manufacturers in support of the tariff. It has become a better mine than any of the California mines to the manufacturers of these salts, whether from the chloride or cryolite. It seemed to be impossible to get the Committee on Ways and Means to see that they were doing an unjust thing to the country in retaining this immense tariff for the protection of these companies. Although they represent a large manufacturing interest, they have not supplied more than one-sixth of the soda salts in use.

MR. MARKOE. I want to say a word about sweets spirits of nitre. I have been requested to ask the Association to endorse some particular

quality. I don't know of any quality except that of the U. S. Pharmacopœia. I don't know what the manufacturers mean by putting up different qualities. I have seen a price current having four different grades with as many prices as qualities.

A member inquired "what is the correct amount of ether required by the pharmacopœia?"

MR. MARKOE. Five per cent. The tests of the pharmacopœia are very easy, and can be easily applied. If any pharmacist buys poor spirits of nitre it is because he does not take pains to examine it.

MR. BREWER. As the matter in regard to the government sales seems important, and as there should be some expression on the part of the Association, either through its committees or otherwise, I have made this little minute, which I propose to append in its proper place with an asterisk.

The foot note attached to the report on the Drug Market was read.

MR. MAISCH. I think most assuredly that the authorities ought to have been bound to destroy such goods. A very interesting case in point is this, which is probably known to all of you. Wherever there were large government hospitals, there was a considerable amount of coffee consumed; the coffee grounds were afterwards sold, of course to be made into coffee again.

MR. CLOSE.—A chemist informed me, who had been employed to examine some cream of tartar, that he found a parcel containing ninety-five per cent. of insoluble matter, the other five per cent. being tartaric acid. He said this was not cream of tartar sold in bulk by grocers, but was put up by parties as somebody's cream of tartar.

THE PRESIDENT.—People offer cream of tartar by numbers and prices according to numbers. I turned out a man who came to my store offering such articles.

MR. MAISCH.—I have known one part stale bread and two of cream of tartar to be used for the manufacture of cream of tartar.

DR. SQUIBB.—I would suggest to Mr. Colcord that he introduce "powdered" before tartaric acid in his report. It would be ordinarily understood, as it stands now, to embrace crystallized tartaric acid, whereas this large lot to which he alludes was powdered only. In regard to cream of tartar it is known that there are two if not three importers of what is called terra alba to this market, from whence it is distributed all through the United States. The quantities imported here are very large, and especially prepared for the adulteration of cream of tartar, and it is spoken of in commerce, and the competition is that one importer's article is more beautifully adapted to the admixture with cream of tartar—whiter and all that sort of thing. The quantity used varies from fifteen per cent.

down to one per cent. I have never met with any instance in which it was offered to be mixed over fifteen per cent., although I have no doubt that larger adulterations are really made, yet it is better not to state what one does not *know*. I know, in an application to grind cream of tartar, it is often required to put in ten per cent. of terra alba to make what is called cream of tartar. There is "pure cream of tartar," next "cream of tartar," and then "cream of tartar number one," which happens to be the third grade. This latter is about eight to ten per cent. adulterated. "No. 2" is more adulterated, and so on up to fifteen per cent. In my own experience there is never a greater adulteration than that, although, as I say, there may be much larger. The change from rice flour to terra alba, which has occurred within the last three or four years, has been caused by the use of that article for calico sizing. The adulteration of rice flour brought sago flour into the market at a low price. The calico printers got hold of this article as a useful sizing, and they made such a demand upon it in the market, that the cream of tartar adulterators were obliged to go to some other article, or pay a higher price for those. Then came terra alba, which has been used to considerable extent as rice flour and flour of sago. I made this investigation in regard to the tariff. I proposed to the commissioners of revenue to put a heavy revenue on terra alba to drive the cream of tartar manufacturers back to sago flour. Sago flour is the residue of a preparation of sago, and is imported into this country by a different class of persons from those who import drugs. It is harmless, and I regard it as a misfortune that the cream of tartar manufacturers should be driven on to terra alba. I was opposed in this proposition, and I acceded to some of the arguments that were used—for instance, if a high duty was put upon it that gypsum would be used; that it would not affect the moral obliquity of the thing to drive them from one thing to another, and the community could not receive any benefit, because the other uses of sago flour and rice flour were so great that they consumed almost all that was imported.

MR. TUFTS.—Where does terra alba come from?

DR. SQUIBB.—It is almost all from Great Britain, and is formed from sulphate of lime. We have plenty of sulphate of lime here, and an argument that was used was, that our people would not be behind hand in producing it of a very nice quality.

MR. CLOSE.—I have seen it asserted that it was prepared in Maine, and consisted of powdered quartz.

DR. SQUIBB.—The objection to our own sulphate of lime has been its color; it is not white, and always is associated with a little iron, sometimes in the state of protoxide, which is converted into sesqui-oxide, which colors the sulphate of lime. But the process of bleaching sulphate of baryta can be applied to the sulphate of lime, and there is a large industrial interest engaged in whitening and bleaching sulphate of baryta and sulphate of lime.

MR. MARKOE.—The name *terra alba* seems to be applied to a number of substances. I have seen a variety of articles bearing that name; some being white clay, some nicely prepared chalk, all sold under that name. There seems to be a great confusion about it.

DR. SQUIBB.—Sulphate of baryta could not be used to adulterate cream of tartar. It is insoluble, and has too great a specific gravity. The manufacturers have never been able to use it to any extent.

MR. TUFTS.—Some years ago, in the College of Pharmacy, a discussion came up in regard to cream of tartar, and Mr. Carney said there was an article about the weight and specific gravity, and of a poisonous character, used in the adulteration of cream of tartar, and it was stated that the only objection to it was that it absorbed water.

MR. MARKOE.—Dr. Carney had reference to alum and saltpetre.

MR. COLCORD.—Oil of wintergreen is frequently adulterated, and the usual adulteration employed is oil of sassafras. One of the acids produces a blood-red color with the oil of sassafras, and it can be readily detected.

THE PRESIDENT.—This discussion shows how important it is to enlighten the public, and I hope we shall publish these facts.

MR. MAISCH.—There has been an adulteration noticed lately in a paper written by Mr. Diehl, in the American Journal of Pharmacy, on adulterated oil of lemon. I have had a sample which I found to be adulterated in the same way, by the lighter portions of petroleum, rectified coal oil. When the coal oil is well rectified, it appears the odor of the oil of lemon covers its odor entirely. It is recognized by the difference in specific gravity, and the almost utter insolubility in alcohol. I suppose good coal oil might be used as an adulteration for other essential oils, and we had better be on the look out for it.

MR. MARKOE.—One adulteration of oil of cinnamon is mainly oil of cloves.

MR. BREWER.—In regard to the adulterations of oil of wintergreen, I agree with Mr. Colcord, that the general article that is used for adulterating wintergreen is sassafras. There has, however, been one or more cases in which the oil of black birch has been detected. It is used as approximating more in flavor to wintergreen than sassafras.

DR. PILE.—Are these valuable methods of adulterating to be published with the proceedings?

MR. MAISCH.—I don't believe we can give these gentlemen any instructions.

The Chairman of the Business Committee read a communication from Messrs. Perkins, Stern & Co., importers of California wines, inviting the Association to visit in a body their establishment. No action was taken on the communication.

The reading of the report of the Committee on Scientific Queries was deferred for the present.

Professor Edward Parrish, acting Chairman in consequence of the disability of President Fred. Stearns, read the report of the Committee on the Internal Revenue Law, which was, on motion, accepted and referred for publication.

THE PRESIDENT.—There is one idea I would take the liberty of suggesting. Of course I am not sanguine as to its successful issue; but, if it were possible for Government to have a depot where alcohol could be bought by an honest man, who wishes to do his duty to the Government, I think it would be a great advantage. They could appoint such men as could be relied upon, and whenever we wanted a barrel of alcohol we would know where to go. The price of alcohol varies so much, we don't know at what price it is. It is throwing a great temptation in the way of the apothecary. If we knew where to go and buy alcohol of honest men, many of us would do it; the Government would receive their taxes, and also dispose of the alcohol. I simply throw that hint out. It might be put in practice; it would only necessitate good honest men, of course.

DR. SQUIBB.—That is just the suggestion I was going to make. The same difficulty would arise to get honest men there, as now arises in the Government way of selecting inspectors. It has been proposed of late, as the most effective way to get over the whole of this trouble, that the tax on spirit should be entirely suspended for six months, and then a tax of fifty cents be placed upon it, and collected rigidly; and it is supposed that this six months' interregnum would do away with the machinery for making it in this way, and the assessment of a moderate tax at the end of that time would be very sure to be collected. The more thought that is given to a plan of this kind the more it will grow upon the sense of those who propose it. That has now been proposed to the Commissioner of Internal Revenue, who is abroad, and what he will do with it no one knows as yet. The trouble is with Congress, and any proposition that is made to Congress in regard to this subject is well illustrated by a statement of the fact that, during the last session in the House of Representatives, the committee of that body appointed to examine into this subject reported to that house that, from their investigations, they believed that only about one gallon in eight of the spirit produced paid the tax; and in the neighborhood of New York and Brooklyn not that much; that after that report had been made the proposition was made to reduce the tax from \$2.00 to \$1.00, and it was voted down by 78 ayes to 144 nays; and while there is such a preponderance on the subject as that vote gives evidence of, it will be practically impossible to interfere with the business. They know the circumstances under which this trade is carried on, from their committees, as well as from abundant evidence, and yet they vote nearly two

to one against any disturbance of the now existing condition of things. We see a paragraph from Washington, which reports the fact that the revenue from spirits is pouring in without any precedent. That seems to appear periodically, and that is what the Congressmen constantly refer back to and say, "You see we are getting abundant revenue from it, and therefore we will not interfere with it." From my personal knowledge with the Committee on Ways and Means, I believe there is no way of getting them to disturb the matter at present.

MR. CLOSE.—A person told me he had seen a list of subscriptions of \$5,000 to get a certain person appointed Inspector. He was appointed, and a subscription was then got up to induce Congress not to reduce the duty.

DR. SQUIBB.—There is no knowing the intricacies of the subject. It has been apparent within the last week that a seizure has been made for the purpose of raising the price of alcohol on the hands of those who have had large quantities. The price was going down to \$3.40, when, in order to give it a little spurt, and make money for those who held it, a seizure was made, and up it went to \$3.70; and those seizures take place with such systematic regularity on the part of the Government officials, that it is clear that they go on in this way for the purpose of stiffening up the market when certain parties get a large stock on hand that they want to dispose of.

The Chairman of the Business Committee stated that at least one member, who had been deprived from the benefits of this Association during the war, had not received the circulars issued by the Permanent Secretary; he therefore moved that to all such members the provisions of the resolution, passed in regard to them at the fourth session of the 14th annual meeting at Detroit, be extended, so as to give them time until the close of the present meeting to perfect their membership. The motion was carried unanimously.

On motion, the Association adjourned until 3 o'clock P. M.

Third Session.—Wednesday Afternoon, September 11th.

President John Milhau in the chair.

The reading of the minutes of the second session was dispensed with.

MR. MAISCHE.—I hold in my hand an official list of the delegates appointed to attend the International Congress of Pharmaceutists at Paris last month. Among them are the following from the United States:—

U. S. Colleges of Pharmacy.—Albert E. Ebert, Wm. Procter, Jr., E. Parrish, and John M. Maisch.

American Pharmaceutical Association.—Wm. Procter, Jr., John Faber and Thomas Jenkins.

In a letter which I received from Prof. Procter, he said that the three delegates appointed to represent the Association were all present at the meeting of the International Congress, but Dr. Jenkins was absent when the report was made; so the report is signed by only Mr. Faber and Prof. Procter.

The Secretary read the report of the delegates of this Association to the International Pharmaceutical Congress, which had been held at Paris, August 21st to 24th. The report was, on motion, accepted and referred for publication. Regarding the death of M. Guibourt, which is mentioned in the report, Prof. Parrish remarked that the members of this Association, on learning, through our delegates to the late Pharmaceutical Congress at Paris, of the death, during the session of that body, of that eminent savant, M. Guibourt, the veteran Pharmacologist, are impressed with profound regret at the loss of one so closely connected with the progress of our Profession, and to whom Pharmacists throughout the world are so largely indebted.

The Secretary was directed to enter these remarks of Prof. Parrish upon the minutes.

MR. PARRISH.—I suppose we might have a little talk over this. I want to express my gratification that we should have been represented in that Congress, although we didn't carry anything, and could not expect to. We were in a steady minority all through, but I doubt not the impression made by our delegation has been favorable to our country. I think it is a cause of congratulation that we have been represented in a Congress of Pharmaceutists. It was not a very democratic affair in its organization, as we must have all observed, each delegation being entitled to a limited number of votes, according to the Society they represent.

MR. MAISCH.—The votes were apportioned among the different States.

THE PRESIDENT.—There is one thing I noticed in the report, for which I am very thankful. It is that our delegates concurred in the necessity of having a regulation of our business. That is the only one thing in which they concurred with the other members. I think they deserve much credit for that.

DR. SQUIBB.—I suppose I must have got an erroneous impression from one or two of the circumstances. I rather took it their action was to

leave our business more widely open than was desirable by the other members. ●

THE SECRETARY.—There were three sub-questions on the subject of the practice of Pharmacy. First, "Shall there be unlimited liberty, as in ordinary mercantile business?" All the delegates voted against this proposition; that is where they agreed. Second, "Shall there be free practice in Pharmacy, with the guarantee of a diploma and personal responsibility under the common law?" All Europe voted against and all America in favor of free practice, and each one personally responsible. Third, "Shall there be a wise regulation by law to protect the public interest?" Our delegates voted against that. Then comes the second question, "of the propriety of limiting the indefinite multiplication of Pharmaceutical shops." All Europe voted for limitation and our delegates voted against it.

The Executive Committee brought forward the following names for membership :—

Chas. H. Bassett, Boston, Mass.	John M. Cunningham, Wilmington, Del.
Chas. I. Eaton, " "	
Wm. B. Tower, " "	John Dixon, Wilmington, Del.
Thos. J. Connor, " "	Chas. Shoemaker, Wilmington, Del.
Chas. B. R. Hazeltine, Boston, Mass.	Edw. McInall, Jr., " "
Geo. P. Kettell, Charlestown, "	Benj. Shoemaker, Jr., " "
Geo. A. Stuart, M.D., " "	John H. Simms, M.D., " "
Wm. Warren, Brighton, "	Charles E. Ferris, M.D., Newcastle, Del.
Augustus Goecke, New York City.	M. H. Donavin, Baltimore, Md.
John A. Dunn, Brooklyn, N. Y.	Geo. F. Danattel, " "
Emil Heydenreich, " "	C. A. Lampanius, " "
Alfred I. Tartiss, " "	Chas. S. Tilyard, " "
S. T. Jones, Philadelphia, Pa.	Charles Cons. Callan, Washington, D. C.
H. C. Archibald, Philadelphia, Pa.	Wm. P. Geiger, Canton, O.
I. W. Smith, " "	W. P. H. Barr, Alliance, O.
Jas. T. Borhek, Jr., Bethlehem, "	Geo. B. McPherson, Cincinnati, O.
Wm. S. Sieger, South Bethlehem, "	
Richard Frohwein, Elizabethport, N. J.	

On motion, a ballot was directed to be held. The President appointed Messrs. Frohwein and Green, of New York, Tellers, who reported the unanimous election of the candidates.

The amendment to the Constitution, notice of which was given at the first session, and which contemplates the establishment of the financial affairs of the Association upon a sound basis, was called up.

DR. SQUIBB.—If it be the pleasure of the Association, it would be competent to take up the proposed amendments to the Constitution; the one proposed yesterday, the other proposed this morning. Those are matters that require to be decided as early as may be in this present session, that those gentlemen who are joining may know what they have to pay.

The amendment as proposed was again read.

DR. SQUIBB.—Two blanks, one agreeing and one declining to relinquish the right of life membership, are proposed to be sent to every member of the Association who joined prior to this meeting, but not to those who are now signing the Constitution, because this thing is fairly before the Association when they present their names and when signing. If they don't choose to complete their membership, they are at liberty to do so, of course.

The proposition I would make is that the annual contribution be increased to \$3.00, and the certificate be charged \$5.

THE PRESIDENT.—How many members have we upon whom we can rely?

DR. SQUIBB.—The number of members we heard from the Treasurer this morning was a little different from what I have here. The Association really numbers 695 members, of whom about 90 will be dropped for non-payment of dues. That leaves the effective roll at about 600 names. Those elected up to 1856 inclusive, 141, are life members, and including those elected in 1857, make total life memberships at the present time, 213. Subtract 213 from 600 leaves about 400 effective members. From this, in 1868, 92 more life members will be subtracted. In 1869, 69 more will be subtracted. That is what we are providing for. Our expenditures for 1862 were about \$768; in 1863, \$926; 1864, \$903; 1865, \$1497; 1866, \$1678; this year they will be \$1500: so that the ratio of increase since 1862 has been more than double. It seems evident that, unless we provide some means to avoid this drain by life membership, and increase our revenue in proportion as the expenses have increased, we shall not be successful in carrying on the Association.

THE PRESIDENT.—The question is whether \$3 will suffice. I have an idea you might increase more; whether it would be prudent to do it is another question.

DR. SQUIBB.—The greater number ought to be put first. It seems we have had abundant evidence from the Treasurer, President and Permanent Secretary that they have been very much obstructed by the failure of the Association to provide them with the necessary funds. The Association seems to have been more willing to vote expenditures than provide means of obtaining them. It seems to me we ought to take up this matter earnestly, and dispose of it speedily, without taking up much time. The proposition to increase the annual dues to \$3.00 is not enough, unless we do away with life memberships. If we succeed in getting life members to

resign their life membership, the \$3.00 appears to many to be sufficient. It is an increase of 50 per cent. upon the original contribution, and would be sufficient, perhaps, for the present, although it might not be for the future.

MR. MAISCH.—In the first place, I would correct the Chairman of the Business Committee in one respect, namely, that members who were elected in 1857 became life members by paying their dues for 1866; consequently we had at the end of the last meeting 213 life members, or ought to have had, provided they had all paid. The members elected in 1858 became life members by paying their dues for the present year. That makes a slight difference, and carries us one year forward of what Dr. Squibb said. I have given a great deal of attention, during the last two or three years, to the subject of our finances, and you will remember I have, on various occasions, urged the necessity of raising funds in some way. During the last five or six months, I have corresponded and conversed with quite a number of our members, and I find even since I came here, since the meeting has commenced, there is such a diversity of opinion in regard to the proper means to be adopted, that I should hesitate to have this discussion commence again in the open body of the Association without having a plan perfected to which a number of members have given consideration. I would therefore propose that a Committee be appointed to take the subject into consideration, and to report at a future session. In my opinion, the members who are best adapted for that Committee are those who have had something to do with our financial affairs—the Treasurer and the ex-Treasurers, the Chairman of the Executive Committee and the Chairman of the Business Committee, who has had a great deal of trouble within the last few months in regard to our finances. I would therefore offer the following resolution: Resolved, that the subject of the financial affairs of this Association be referred to a Committee consisting of the Treasurer, the ex-Treasurers present at this meeting, and the Chairmen of the Business Committee and of the Executive Committee, to report at a future session. I think that will obviate a great deal of discussion in the body of the meeting, which we can devote to other subjects.

DR. SQUIBB.—I am opposed to that resolution, because I think all our minds are made up. I think we can dispose of the matter without the necessity of a Committee. If it cannot be done without the necessity of discussion, I should favor the appointing of the Committee; if any of us feel disposed to push this plan, or any other, against the wish of the Association, let us have a Committee.

MR. PARRISH.—I approve the proposition of Mr. Maisch, because I don't think our minds are made up, as Dr. Squibb thinks. I don't think his mind is made up. He didn't know whether we had better fix the figures at \$5 or \$3.

DR. SQUIBB.—I left the blank in deference to the Association. The blanks are filled up, with pencil, with \$3 and \$5.

MR. PARRISH.—I am in favor of relieving the officers of the Association, but I am opposed to putting more on the members of the Association than is absolutely necessary. If we need additional revenue, raise it. The objection to taxing is that those persons we most desire to associate with us are discouraged from joining the Association on account of its fees. I have heard two young men say they did not think it was worth while to join this Association, and pay \$10. I would not go and ask them to invest \$10 in that way. I want to keep down our subscriptions. I approve of the plan in regard to the permanent members. It is an unfortunate thing we ever adopted the rule to give up the fees when a member has been paying ten years, but I think we must be cautious how we fix these figures until we have it clearly in our own mind what we want. I mention the case of the two young men merely to illustrate the point I make, that we must keep our assessments as low as possible. I said \$10, because the young men I referred to are in business together as partners.

MR. MAISCH.—I am perfectly ready, so far as I am personally concerned, to vote on the proposition before the Association. I offer this resolution only because, from interviews I have had with some of our members, I came to the conclusion there was such a diversity of opinion we might be led to discuss it for a number of hours and finally not arrive at any conclusion. I think that this motion would be the best manner of perfecting a plan, and then we might go through with it.

DR. SQUIBB.—The Business Committee has fixed upon this plan; likewise the Treasurer and the Executive Committee. So far as these officers are concerned, the Committee of Mr. Maisch has already acted upon this proposition and approved it. The ex-Treasurers have not seen it, nor asked to see it, that I know of.

MR. JENNINGS.—I disapprove of the amendment just offered, from the fact that the matter is now in a proper shape for this Association to act upon, and the suggestion of Dr. Squibb seems to be a good one, that we first vote upon the highest number in order to get at the idea of the association.

MR. CLOSE.—I would offer an amendment, that the date of September 9th be changed to September 15th.

DR. SQUIBB.—Mr. Close is out of order; there is a motion for a committee before the Association.

MR. COLCORD.—The motion is the raising of this committee. I would like to see it taken out of the hands of the Association to save time, because I think in that committee there would be a plan we should all agree to. If this committee is not raised, I want to make some objection to the plan of Dr. Squibb. If you are going to raise the committee I will not attempt to discuss it.

MR. COLBY.—Would it not be well to put in the name of some member

who is apt to be a little more conservative than those named in the resolution?

MR. PARRISH.—I thought of the same thing. I think the committee is constituted of those men who favor one side of the question. I don't think it is exactly constituted to bring out the representative feeling of the Association.

MR. COLBY.—I suggest that Mr. Parrish be put on the committee.

The Secretary read the names of the Committee as contemplated in the resolution.

MR. COLCORD.—The objection to that committee is, that we are all in favor of raising the largest amount of money. We want to hear from the men who want to keep it down.

MR. WIEGAND.—We are not in favor of raising the largest amount of money. There have been much larger figures named.

MR. MAISCH.—President Stearns was in favor of raising, annually, three to five thousand dollars, and with the views he had of what our Association ought to be, I think he was not much out of the way.

The vote being taken, a division was called for, when 18 votes were cast in the affirmative, and 14 in the negative. The resolution was declared carried.

DR. SQUIBB.—I now have another proposition to amend the Constitution which was read this morning.

Whereas, The Constitution now contains no provision for the membership of those teachers of pharmacy and chemistry who, as lecturers in the various colleges of pharmacy, or as teachers in any other way, have a close interest in the objects and designs of the Association, therefore,

Resolved, That Article II. Section 1 be amended by adding after the word "another" the words "and those teachers of pharmacy, chemistry and botany who may be specially interested in pharmacy and materia medica." The section will then read as follows:

SECTION 1. Every pharmacist and druggist of good moral and professional standing, whether in business on his own account, retired from business, or employed by another, and those teachers of pharmacy, chemistry, and botany, who may be specially interested in pharmacy and materia medica, who, after duly considering the objects of the Association and the obligations of the Constitution, are willing to subscribe to them, are eligible to membership.

MR. PARRISH.—It puts it on a little different ground from what occurred to me as best. The fact of one being a teacher of these branches is not what we have to look at. Suppose a man is a writer upon them. We have a gentleman in the room with us to-day. I don't know whether he will pardon me for mentioning his name. He would do us great honor as a member of the Association; although not a teacher

of pharmacy, he has contributed more largely than teachers of pharmacy or materia medica or chemistry generally have to our knowledge of those branches. I think it should be worded, while we are about it, to open our doors to all the information we can get. I regret it is now construed as to keep any one out who is solely engaged in the cultivation of the sciences pertaining to pharmacy.

DR. SQUIBB.—It was deemed by those who discussed the matter, that it had been desirable to limit the Association to those specially concerned in its welfare, and in the welfare of those branches akin to pharmacy, and it was supposed to be bad to open the door too wide; therefore this limitation. The Association can decide one way or the other; if it is desirous to open the door to the admission of all persons cultivating materia medica, pharmacy or chemistry or any other collateral science, I am not unwilling to see it done, but it was supposed by those who hit upon this that it was the best thing not to open the door too wide.

THE PRESIDENT.—There is one thing which will protect us. They will be voted for I presume, and if there should be any objection we should decline to receive them.

DR. SQUIBB.—The voting is generally done *en masse* and with little care. It is very easy to say to those who are not eligible, that they are not so, while it is difficult to reject any one by refusing to elect him.

At this point the President left the room, and on motion of Dr. Squibb, Mr. Tufts assumed the chair.

DR. SQUIBB.—I think it would be well, while Mr. Milhau is absent, to suggest to some of the Vice Presidents to be present.

The question on the adoption of the amendment as proposed by the Business Committee, was decided in the affirmative by a unanimous vote.

Professor Parrish read the report of the Committee on Queries, action on which was for the present deferred.

The Auditing Committee reported that they had examined the Treasurer's accounts and found them correct. On motion the report was adopted and the Committee discharged.

The reading of Special Reports being called for, the subjects of the following queries of last year were continued at the request of the members having accepted them.

No. 1 to Geo. C. Close, of Brooklyn. No. 3 and 23 to Saml. P. Duffield, of Detroit. No. 5 to Dr. E. R. Squibb, of Brooklyn. No. 7 to Ferris Bringham, of Wilmington, Del. No.

14, 19, 30 and 36 to Prof. Wm. Procter. No. 29 to Edward C. Jones, of Philadelphia. No. 32 to Thos. E. Jenkins, of Louisville, Ky.

The reading of reports in answer to queries No. 2, 6, 9, 13, 17, 20, 21, 22, 26, 33 and 35 was postponed for the present.

No reply was received in answer to queries 10, 11, 12, 18, 25, 27, 28, 31, 34, 38, 41 and 42.

In answer to query 4, on the adaptability for medicinal purposes of dry wine, made from grapes grown in the U. S., Prof. Parrish said :

Mr. Stearns requests me, in a letter, to answer for him verbally. He says that the subject has before been fully and satisfactorily reported upon by him ; that, while the bouquet of American Wines is good in many instances, and very agreeable, he considers them deficient in alcoholic strength for the purpose of pharmacy, unless alcohol be added, and that is not at present considered quite a legitimate practice. He opens the question whether it might not be done to advantage.

MR. MAIBCH.—In a letter that Mr. Stearns wrote to me a few days ago, he requested me to give some information to Prof. Parrish. I have not been able to find the letter to-day. I will make the necessary statement to-morrow. It has reference to the fact (so far as I remember) of the distillation of alcohol—of a kind of brandy from native wines. The subject of growing wines in this country seems to have become very important and in some of our Southern States they are taking up that branch of industry. One of our members, Mr. Gallagher, from North Carolina, sent me some samples, an investigation of which I have commenced, but unfortunately the time was so short that I have been unable to conclude my examination, otherwise I should have had a great deal of pleasure in laying the results before the Association. Of these North Carolina wines, the old ones are very good ; others appear to be only of medium quality or perhaps inferior. One circumstance seems to be very unfavorable to the development of the wine culture so far as our native grapes are concerned, and that is the peculiar aroma of this grape. The grape that is best adapted for this purpose is the *Vitis labrusca*. A number of varieties have been obtained from that, and those varieties have to a certain extent a better aroma. The gentleman who sent me these wines, also sent me some wine made last year, and he states that there is a peculiar odor developed, which he calls the mouse odor. The odor is very peculiar ; but he says that is entirely lost on keeping it for a number of years. American wine, therefore, wine which is made from American grapes, must be a number of years old to lose that "mousey odor," as he calls it, and they obtain a fine flavor afterwards and become heavier wines than many of

the wines grown in the southern part of Europe. One thing has particularly struck me in regard to this North Carolina Wine, and that is its very high specific gravity, showing the amount of extractive matter must be very considerable. The amount of alcohol is likewise considerable. Some contains nearly twenty per cent. I don't remember the exact amount now. It seems to me, if attention was paid to this subject, we might grow wine in this country, particularly in the Southern States, which would answer in every respect for pharmaceutical purposes, just as well as wines grown in the southern part of Europe, and the wines which are officinal in our pharmacopœia. The climate in our Southern States seems to be well adapted for this purpose. One thing is certain, wines grown in the Central and Northern States, in fermentation, generate a great deal of acetic acid. They are too acid for pharmaceutical purposes, at the outset, while the wines of North Carolina seem to be adapted to the purpose. I think the question is not satisfactorily answered. If we could induce somebody living in the Southern States to continue the investigation for some years, I believe something good might come out of it.

DR. SQUIBB.—It seems to me it is a fruitless task to attempt to investigate this subject. Although at present the wine growing interests are coming to be important, they are not so sufficiently to be assured that any fixed wine is the same throughout. Every thing is in confusion among the wine makers. Samples of very good wine can be obtained, but after the samples are obtained and you go for the same wine you don't find it. The wines of any particular maker are not known, so far as the wine is concerned, and an investigation of any given wine is like an examination of any given petroleum. It is only an investigation as to that particular sample. Hence, I think this may be trusted to the Pharmacopœia, and that that had better be adhered to until changed. The substitution of any other wines at the present time would be I think a misjudged step.

THE PRESIDENT.—Should we not extend our investigations to the wine in California? The grape there is a better grape, and it may be that they have specimens we might approve of, and by inquiry might know whom to obtain them of with certainty. I have myself imported some wine from there through a gentleman going out there. I begged him to send me the best wine they had there. It was a light wine, had not the bouquet of French wine, and had an earthy taste, but I presume it might be used in pharmaceutical operations very well. It was drinkable wine, and that is about all I could say of it. We have an invitation from parties who, I suppose, must be importers, and a Committee might be appointed now perhaps to go down and examine at their leisure the various wines. Those gentlemen who have tasted of their wines might perhaps throw some light on the subject. It seems that you have confined your examination to the grapes grown on this side.

- **DR. SQUIBB.**—It is the general opinion among those who know most about wines that the wines grown in California and that neighborhood are all light wines; and when a heavy wine comes to this market with that reputation, it is not always the product of that section. It is pretty well known among wine men that there is a wine grown along the coast farther down—a Peruvian wine—which vies with the European wines imported here; that the Madeira grape and Sherry grape transplanted into that soil produce a very analogous wine, and a wine of full body. These wines are found here occasionally,—not, however, with the Peruvian name, because, as a dealer once told me, if it was known that they were Peruvian wines they would be unfashionable. They therefore give them the names of “California wines,” and we have California Madeiras and Sherrys, whereas they are grown lower down, in a climate better adapted to the cultivation of the grapes from which the official wines are made. The grapes grown in California either produce wine which must be fortified in strength in order to make it keep, or wine which is light, more nearly resembling the Rhine wines, and the other northern wines.

MR. MAISCH.—I was not aware of that fact, and am glad I obtained that information of the growth of wine in South America. The fact that such a wine grows along the west coast of South America seems to prove that the western coast of our continent is better adapted than the eastern to grow particular species of grapes. If I understand it, the grape which is grown in Peru is the same which is grown throughout Europe. The object is to see whether we could not produce suitable wine. If I remember correctly, it was Prof. Wayne, of Cincinnati, who spoke in regard to that subject several years ago. He told the Association that an attempt had been made to introduce the *Vitis vinifera* into this country, and had failed, and they had to fall back on the *Vitis labrusca* and its varieties. In regard to unreliability of the composition of the wine, that is true also of all European wines. If you take port wine, you have a certain variation in the strength of the alcohol, as well as in the quantity of extractive matter. There is a limit between the variations. For instance, sherry wine will vary in alcoholic strength from 15 to 22 or 23 per cent.,—a difference of about 50 per cent.; and the same you will find to be the case with French and Rhine wines, and what is usually sold here under that name, but does not grow on the banks of the Rhine. These latter wines have a strength varying from five to eight volumetric per cent. of alcohol, while the true Rhine wines—those most highly prized—have an alcoholic strength from ten to twelve or fourteen per cent. There is a certain variation, and that variation is not only in the alcoholic strength or the amount of extract, but the free acid in the different kinds of wine derived from the same grape, but grown in different localities. One of the titles of the papers I have received from Prof. Wayne has a close relation to this subject. We have one result there from the culture of wine in this country, and that is the production of American tar-

tar. There is a sample here of American tartar presented by Mr. Wayne, and he has a paper on that subject, which will be read hereafter.

In order to test the sense of the meeting for holding an evening session, it was moved, that when we adjourn we adjourn to meet this evening at 8 o'clock. The motion was negatived, by thirteen nays against nine ayes.

MR. MAISCH.—I have just put my hands on Mr. Stearns' letter. I will read a portion: "Tell Mr. Parrish that a man in this city made eight hundred gallons of alcohol, of seventy per cent. above proof"—(which means eighty-five per cent. alcohol),—"out of new rhubarb wine. It was seized by the internal revenue officers. He claimed he was only a rectifier, and not a distiller, and beat the government on the suit,—by what legal quibble I know not. I only know that \$200 was paid to a lawyer who gained the suit."

MR. PARRISH.—I have left the report of the Committee on Queries in the hands of Mr. Bedford. I wish every gentleman would interest himself to get the queries allotted. It is a source of real regret to me not to be able to attend the other meetings of the Association; but I was obliged to make my arrangements to return home this evening.

No. 8. On honey, &c.

An answer was read by F. W. Colby, of New York, which, on motion, was referred to the Executive Committee.

DR. SQUIBB.—I would like to ask whether Mr. Colby has turned his attention to searching for sorghum sugar in the honey, or the uncrystallized sugar said to be used in the adulteration of honey.

MR. COLBY.—I have tried different tests for different kinds of sugar, and have heated honey to see if, after having been boiled, it would become harder; and also compared it with other specimens of honey I had every reason to believe were pure. I found no difference in them. In the chemical tests I have tried, I found in some cases cane sugar and in some not.

DR. SQUIBB.—The copper test would determine the presence of the sugars from cane.

MR. MAISCH.—There is one way of ascertaining the presence of cane sugar, and that is by means of polarized light; the presence of different sugars is shown by the difference in the polarization of light. I don't know of any other test. I doubt, unless there was crystallizable cane sugar, that it could be discovered in any other way, except by the polarizing apparatus. I don't believe maple sugar, or any other sugar, could be discovered by any other means.

DR. SQUIBB.—My point was that natural honey was free from glucose, and that this sugar could be detected by the copper test.

MR. MAISCH.—The solution of honey reduces Fehling's solution.

PROF. CHANDLER.—Sugar of starch is made by the action of sulphuric acid on starch, and the sulphuric acid is neutralized by carbonate of lime, which causes the greater part of it to separate as sulphate of lime. We might possibly get a quantitative test by knowing the amount of these substances.

MR. MAISCH.—Does Professor Chandler know whether pure honey is destitute of inorganic substances? whether it does not contain minute quantities of sulphuric acid and lime?

PROF. CHANDLER.—It probably does contain mineral matter, but the quantity is so slight in the honey that unless it contains a far greater portion than it usually does, it would not interfere with the test.

DR. SQUIBB.—That is a significant suggestion. I think it is worthy of Mr. Colby's attention if he proposes to continue the subject.

No. 15, in regard to *Veratrum viride* and its alkaloids.

THOS. S. WIEGAND read a paper on this subject, by Charles Bullock, of Philadelphia, which, on motion, was referred.

MR. MAISCH.—That is in opposition to the views of Dr. Percy.

MR. WIEGAND.—Dr. Percy, in an interview with Mr. Bullock, expressed himself gratified to know that the subject had been taken up by Mr. Bullock; although the experiments were diametrically opposite to his own, he was pleased to see that he had taken up the subject.

DR. SQUIBB.—Dr. Percy is a very easily pleased man. I state that for the information of those who don't know it.

Query 24, accepted by S. S. Garrigues, of East Saginaw, Mich.

MR. MAISCH.—Mr. Garrigues has done something in regard to that subject, I know; but I have not received any paper from him.

On motion of Dr. Squibb, the query was dropped.

Query 25, accepted by Robert C. Kennedy, of Cleveland, O.

MR. COLBY.—I sent Mr. Kennedy some senna a few weeks ago, and I expected he would be here. I have not heard from him within a few weeks.

The query was dropped.

Query 28, accepted by Alfred Mellor, of Philadelphia.

MR. MAISCH.—Mr. Mellor is in Europe. That question is answered by Mr. Bullock's experiments, that when freed from alkaloids the sediment is not sedative.

DR. SQUIBB.—This question includes the alkaloids.

The Secretary read a paper, by Ferd. Sennewald, in answer to query 37, regarding the presence of chrysophanic acid in senna.

MR. MAISCH.—I would state that, so far as I know, Dr. Martius was the first one who stated that senna contained chrysophanic acid, although he didn't obtain it in a pure state. He stated senna to have one of the reactions of chrysophanic acid, which to be sure, might pertain to another principle. When senna is taken internally, the urine will acquire a dark color, like from rhubarb, and in a very short time be colored red on the addition of an alkali. That is what first led Dr. Martius to suppose it contained chrysophanic acid. Lately, within the last year or two, Prof. Dragendorff has examined the subject again, and corroborated Dr. Martius' statement; but he prepared the chrysophanic acid in a pure state. He states, however, that its composition differs slightly from chrysophanic acid from rhubarb, the difference being one or two equivalents of water—otherwise the reactions appear to be the same. One reason why Mr. Sennewald has failed may have been that he operated on too small a quantity. Dr. Martius states that to obtain chrysophanic acid, not less than ten pounds of senna ought to be worked up at once. This does not, however, settle the question whether senna owes its purgative power partly or wholly to chrysophanic acid.

A paper by Jas.W. Mill, in answer to No. 16, on preparations of Ergot, was read by the Secretary.

DR. SQUIBB.—It seems to me that that paper is a very important one in its bearing, from its importance and from the fact that upon the quality of the preparation of ergot frequently depends life. It ought to be received with caution, for it will take a long time to demonstrate the accuracy of the statements and the inferences to which these statements lead. We have an officinal preparation, the fluid extract of ergot, which leaves little to desire when properly made. I have known of its being used after an interval of eight years with the same effect that it had when first used—as near as the physician using it could decide. In the same dose it produced the same effect. This renders the fluid extract what the ergot itself is not, namely, permanent. I should be sorry to see the efficacy or use of ergot risked, inasmuch as it is rarely used except in cases of great necessity. I would like to have that paper go on record, but with this reflection in connection with it, that it is too important a subject to be drawn into confusion by new ideas, which can be confirmed only by long and careful trial and experience.

MR. MAISCH.—The idea upon which this paper rests altogether, is that the infusion of ergot has the same efficacy as ergot or the alcoholic tincture, and so far as my knowledge of ergot goes, I cannot believe it, and would not subscribe to it until after thorough trial. While it may have a cer-

tain efficacy, I doubt whether it possesses the whole of the strength of the ergot itself. I believe Dr. Squibb is perfectly correct in cautioning against any alteration in the official formula which furnishes such an efficient preparation.

DR. SQUIBB.—The safest possible practice with ergot for the pharmacist or physician, is to keep well selected, whole ergot on hand, and whenever human life depends upon it to trust to nothing but the immediate bruising up of the dose of ergot in the mortar, to be swallowed with an admixture of water. There is nothing that can be more certain than that, and wherever life is at stake, it has always seemed to me that that is the proper practice, and I have always urged it upon all to whom I have spoken on the subject. To depart from that is to go in the direction of uncertainty, and the habit of buying powdered ergot is thoroughly bad. There can be nothing worse than the buying and selling of powdered ergot by the pharmacist. It so rapidly deteriorates that it cannot be depended upon.

MR. WIEGAND.—Some years ago I found I was getting a large number of prescriptions for that article, simply because I adopted the course which Dr. Squibb has indicated as being the only proper one. Many physicians were extremely anxious to have it given as the doctor says, bruised or powdered sufficiently fine to be what you would call a coarse powder. Given in that way it was almost always satisfactory. I never heard before such satisfactory testimony to the efficiency of ergot as the doctor has just given us. It is most gratifying to know that a preparation eight years old can be so reliable as in the instance he has given us. At the same time I believe that freshly powdered, for each prescription, is the only way in which we can fairly give ergot as ergot.

DR. PILE.—How long can ergot be kept powdered without losing its efficiency?

MR. WIEGAND.—I don't accept that it ought to be kept powdered at any time. A different hygrometric condition of atmosphere may determine its utter worthlessness in a very short time. I think a lot powdered with such weather as we had two or three weeks ago would in a very short time be perfectly disgusting.

MR. PILE.—Then the fluid extract must all be nearly worthless, as we must keep it exposed for hours while making.

MR. WIEGAND.—I don't think that decomposition has had an opportunity to take place in a few hours. Many persons would call it fresh powdered when it was four weeks old; at the same time I would not like to dispense such ergot on a prescription. I should prefer to put it through a sieve of forty-five to sixty; that will make fair powdered ergot. It will require a finer bruising than a great many other things of a dry nature which go through readily.

Mr. MAISCH.—Would a sieve of forty-five yield a sufficiently fine powder?

Mr. WIEGAND.—I think that would make a pretty respectable powder. I would not say positively.*

Dr. SQUIBB.—My position needs explanation. The reason I condemn powdered ergot is not only that it deteriorates by being kept, but is very much injured in the powdering as the drug miller does it. In order to render it acceptable to the market it must go through a net of sixty meshes. In order to get it to that degree of fineness, it has to be thoroughly dried, put through a coarse mill and then dried. That drying process is what I believe deteriorates it more than age. There is a practical impossibility in powdering it without drying. It fills the meshes of the burr-stone of the drug mill, and every thing that can be used to make a fine powder of it will clog and become closed. It is subject to a good deal of objection, and for a year past I have declined to powder it because any body would be satisfied with the powder I can give them through a sieve of thirty-five. From my judgment, and it is a judgment based upon the history of the drug in its deterioration, I have no doubt that it deteriorates. There is hardly any doubt that it deteriorates in the grain; that it deteriorates much faster in the powder there can be little doubt.

Mr. MAISCH.—I will cheerfully add my testimony to the fact of the efficacy of ergot when freshly powdered. I disagree with Mr. Wiegand of the necessity of powdering it for immediate use. As I powder it, it would take me about an hour to powder two drachms. I have a practice of never keeping on hand more than two or three drachms. Powdered ergot is never kept more than two or three weeks—when that time has elapsed, it is thrown away and another portion is powdered and kept on hand; two drachms being about enough to use for one or two prescriptions. The physicians who have used it have been very well satisfied with it. I pass my powder through a sieve of sixty, and that is why it takes a good deal of trouble. It may be accomplished by a little hard work in less time perhaps, but it takes my young men about an hour to powder two drachms. It does not pay me: I could buy it a great deal cheaper. A short time ago, an apothecary sent to my store and wanted half an ounce of powdered ergot. I said "I don't have that much in my store; I only keep two drachms on hand. If you want that you are welcome to it." He said "I have a prescription for half an ounce." I told him he ought to prepare it himself; but he said it was too much trouble, he could buy it powdered.

Dr. SQUIBB.—Dr. Meigs used to direct his students always, without fail, to see that the apothecary beat up the ergot at the time it was prescribed. His direction was, two powders of twenty grains each—that the apothecary should put the forty grains into a mortar and simply bruise it and divide it into two powders. Then the patient was directed to pour that

powder into a half glass of warm water, or if the stomach could not take warm water, to add the same to the same quantity of ice water, and swallow the ergot and ice water together. Many physicians have adhered to this practice ever since, and I believe the best and safest practice is obtained from that source.

Mr. MAISCHE.—I don't think I have a right, when a prescription prescribes powdered ergot, to give bruised. If the physician orders bruised I would give it. If a physician sends a prescription for one drachm of powdered ergot, the way I make my powder I don't consider myself justified to take the time to obtain that much. I don't throw into my mortar half a pound of ergot for the purpose of getting a drachm or two of powder, because, if I did, the remainder of the ergot would be bruised and worthless in the course of a few weeks. For that reason I use three drachms to obtain one half of powder, and after some time throw the rest away. If I was to make such a powder after receiving a prescription from a physician for powdered ergot, it would take half an hour to an hour to put it up.

Dr. SQUIBB.—I think it would be justifiable to send for powdered ergot, powder that could be made in a shorter time. The physician who orders powdered ergot does not always mean finely powdered ergot. A powder could be made into powder fine enough for dispensing as powdered ergot, in ten minutes.

Mr. MAISCHE.—I can't do it.

Dr. SQUIBB.—Not sifted but just rubbed fine.

Query No. 40, in regard to the presence of Santonin in the seeds of *Chenopodium anthelminticum*, accepted by Thomas S. Wiegand, of Philadelphia.

Mr. WIEGAND.—Year before last was the year in which that query should have been reported upon. My engagements were of such a nature that I was unable to make an examination as I should like to. I obtained the service of a young man who had been for a number of years in our business. He investigated it as carefully as he was able, not only chemically but therapeutically with the aid of a physician. All his results were of a negative character. Since he gave me his report, I met another person, in my judgment more competent to make the examination, who has arrived at precisely the same results.

It was moved and carried that the Association now adjourn to meet again to-morrow at 9 o'clock, A. M.

The Association then adjourned.

Fourth Session.—Thursday Morning, September 12th.

The meeting was called to order at 10 o'clock, President J. Milhau in the chair.

The Secretary read the minutes of the second and third sessions, which were corrected and then adopted. The Secretary suggested the appointment of a Committee on Specimens.

Alfred B. Taylor, on behalf of the Philadelphia College of Pharmacy, invited the American Pharmaceutical Association to hold its next Annual Meeting in the City of Philadelphia.

The Chairman of the Executive Committee presented the names of the following gentlemen for membership, they having complied with the requirements of the Constitution.

Jas. L. Scofield, New York City.	G. A. Zausinger, Louisville, Ky.
Henry Kimmel, " "	Ferd. J. Pfingst, " "
Edward T. Dobbins, Philada., Pa.	F. Sacksteder, " "
John R. Angney, " "	J. F. Llewellyn, " "
C. Rademaker, Louisville, Ky.	Norman Fletcher, " "
J. M. Krim, " "	Fr. Weiss, Jeffersonville, Ind.
John Colgan, " "	Richard Vogel, Saginaw City, Mich.

The President appointed Wm. Neergaard and Henry Haviland of New York, tellers, who reported the unanimous election of the candidates.

The chair announced the following Committee on Specimens:

E. H. Sargent, of Chicago; J. B. Baxley, of Baltimore, and F. V. Heydenreich, of Brooklyn.

The Committee appointed at the third session to report a plan for regulating the financial affairs of the Association, reported through the Chairman of the Business Committee, 1st, the plan proposed by the Business Committee at the 1st session, upon the main features of which the Committee had agreed unanimously; and, 2d, the retaining in the Constitution of the clause regarding life-membership, but altering the conditions for attaining the same.

After some discussion, it was moved by Robt. J. Brown, and seconded by Alfred B. Taylor, to abolish life-membership for the future.

Dr. SQUIBB.—This motion is to test the sense of the Association as to whether they will drop life-memberships, and is in proper order the first

one the Association should decide. Members should decide this thoughtfully—they should not go and wipe out life-memberships without due consideration. In the estimation of some members it is a judicious clause, while other members think it was a mistake when put into the constitution, and should be abolished. Let us take the question fairly and squarely, knowing what we are about. We have been notified sufficiently, and the matter has been sufficiently discussed.

Mr. TUFTS.—You can't act upon the proposition to make it for twenty years now?

Dr. SQUIBB.—Not now.

Mr. TUFTS.—It is unfortunate the two propositions can't come up together.

Dr. SQUIBB.—If this be lost when put, we have to get up another proposition, and that has to lay over.

The PRESIDENT.—Every member has a right to resign; and if you make other arrangements than those he has depended upon, he can send in his resignation.

Mr. TUFTS.—I suggest the propriety of having this lay over until this afternoon, and have both propositions come up together.

Mr. TAYLOR.—This subject of abolishing life-memberships may look selfish upon the part of those who are life-members. It may look as if they wanted to make a close corporation of it, and shut off others from becoming so. Those who are life-members would be willing to relinquish their rights and become subscription members again. The whole subject of life-memberships is a very bad thing in this Association. We are not able to carry the life-members and confer upon them the privilege of being a tax on us every year, as they have been since this plan was first started: When this plan was first proposed, I objected to it strongly; now I think we have got into trouble, and the sooner we get out of it the better, and we can only get out of it by abolishing this thing in toto. Every life-member is entitled to a copy of the proceedings which cost us about \$1.50, and every year we are adding to that list, so we are increasing our expenses by giving away more volumes and by getting up a more expensive volume every year. I think, if we abolish the life-membership from this time, with simply increasing the dues, we shall be able to meet all our expenses, and then I think the old members will almost unanimously become contributing members again.

Mr. COLCORD.—A motion has been made and seconded to drop life-membership. I have been and am opposed to this motion. I think it is a good thing and I want to see it made remunerative to the Association. We are all for one object—to raise the greatest amount of money we can without its being burdensome to the members. The original intention of life-membership was to apply to a class of people who would leave us. A

man joins the Association and three years after he joins he may die; he may retire from business and his interest ceases in the Association, and he has either got to resign or become a life-member. The only intention of life-membership was to cover that class of cases. We want to make it remunerative; either to charge life-members for their proceedings, (and if they don't want them they need not take them,) or else we want to put life-membership at such a price that the interest shall average the amount of money the Association would receive if they continued and there was no life-membership. If a man pays \$50 and dies two years after he pays, we make so much money; if he relinquishes his business but pays his \$50 we make so much money. The advocates of life-membership desire that it shall be made remunerative to the Association, more so than if we abolish it. For that reason, I am an advocate of life-membership, not that the Association shall suffer by it, but that they shall be remunerated by it and make more money than by repealing the act. I think the life-membership can be retained so as to produce this and even have a better result, and satisfy the life-members better than by any other plan. In relation to life-members, I think there would be enough willing to make up their contribution to \$50, so that the Association would not lose from them. I believe it would be a good plan to retain life-membership on those conditions. Those are the reasons why I am opposed to its abolition.

DR. SQUIBB.—The refuting argument to Mr. Colcord's remarks would be that the life-membership having been made for a small class of cases, has come now to be a burden on a very large class of cases to accommodate the few: those who retire from business. Desiring to retain their influence, we have come to lose by it,—all the application that it has to the 206 members who don't retire, but retain their membership. I don't think this question needs any more discussion. I have sufficient confidence, with Mr. Colcord, in the life-members to think that a portion of them at least will sign the affirmative note to the treasurer. All they will have to do will be to sign their name and enclose it in the envelope which the treasurer sends to them, and all each member will have to do will be to look at those two blank slips and say, on the one hand, "Well, the Association deals fairly with me—it is going to keep its faith with me, if I don't choose to relinquish my rights, and I think on the whole I will not relinquish but retain my life-membership. I may want some day to go out of the business. I shall continue in the Association and be able to participate in its business. On the other hand, another man may say, "The Association deals fairly; it presents me with two notes; they have been a little liberal in not changing their Constitution arbitrarily, and I think I had better act a little generously towards them, so I will sign the affirmative note and send it back." That seems to be the natural course that will be taken by the members. They are older members, that have passed through the time when \$3 or \$5 is of so much value; they have been successful in business to a greater or less extent, and they would not

feel the contribution to be so great a weight upon them. I think they will be willing to keep themselves on as contributing members. That is the view in which this paper was prepared; it was submitted to the Business Committee and to several others in the neighborhood at the time and it appeared to us to be judicious, and certainly it is an honest way of dealing with the members of the Association, and of getting all we can out of a thing that has proved to be a mistake in the past.

Mr. COLCORD.—The real difference between Dr. Squibb and myself is that the doctor thinks the life members are a burden on the Association. I want to make them remunerative. I think there are enough men who will be willing to be life-members, and be as remunerative as the contributing members. I believe the proposition of \$50 will do it. We can make it so that they shall pay for their Proceedings.

Dr. SQUIBB.—To make them pay for their Proceedings will be as much repudiation, because we promised them the Proceedings gratuitously.

Mr. BREWER.—It seems to me that we have had quite enough discussion on this matter. I have confidence, with Mr. Colcord, that some of the life-members will agree to what he says, but I also believe that every man who is a life-member will relinquish his rights under the present provisions, and walk up to Brother Tufts and become a contributing member. I don't believe that any member of this Association will stand out against such advantages as this change will be to the institution. We all love our institution and want to have it flourish, and we don't want to be reaping its advantages without paying for them. I believe every life-member will walk up and settle his bill as a life-member, and pay for his Proceedings; that being done, I think we shall have funds sufficient without providing for life-members paying any amount whatever. I think we had better try it.

Dr. SQUIBB.—There is one thing that might be said; this proposition—when a life-member signs this, saying he relinquishes his life-membership, it is not intended to mean that he shall pay up. Many of them have been five years life-members. It was not intended to call upon them to pay up from that time, but to commence to pay from this time.

Mr. BARR.—As one of the life-members, I want to vote for Dr. Squibb's resolution. I have seen the necessity of this for the last three or four years. I hope it will pass. I don't think there is one of the life-members who will vote against Dr. Squibb's resolution. We have either got to do this or lay a tax to pay expenses.

Mr. LINCOLN.—Gentlemen will excuse me for rising at this time, but I desire to say that I am decidedly opposed to giving up life-membership. I would have it increased *pro rata* with the increase of certificates and the annual contribution. I think an association of this kind needs life-members. It gives stability to it; at the same time I would wish to have it increased, and I think it would be better to increase it *pro rata*, perhaps

twenty years on the same conditions as expressed in Dr. Squibb's resolution; simply on the question of giving up life-membership I should be opposed to it, unless there is some other proposition going with it. On many accounts I should prefer to have a resolution offered to bring it up this afternoon in connection with this, by which life-membership be increased to twenty years, instead of ten. That may be adopted in case this fails. I should prefer to see it come up together, because I should feel obliged to vote for the proposition as it now stands.

Mr. COLCORD.—This, I understand, is only to test the sense of the meeting.

Mr. HAVILAND.—I was about offering an amendment in the way of a compromise to make a member a life-member after payment for fifteen years, instead of twenty years. That makes it about *pro rata* with the increase of dues and the certificate. If this proposition be lost, I shall offer that as an amendment.

Dr. SQUIBB.—That proposition will not help us at all at this time. It does not help us in our present finances, which is the object of the Association.

Mr. HAVILAND.—The object is to raise sufficient money to meet all our expenses each year. It must be done in one of two ways; to offer inducements for new members to come in, or shut down on new members coming in and raise on the members who are in. It is for this meeting to decide which is the best plan. I have thought myself that the life-membership was a good thing; that it has brought us in money instead of being a loss of money. That was my view when I was treasurer; many paid their life-membership in advance at that time, and the present treasurer informs me that they have done so since.

The PRESIDENT.—What percentage paid in advance?

Mr. HAVILAND.—I don't recollect, but quite a number I think; many that perhaps would have resigned at the end of five years. The matter was placed before them, that, if they paid for five years more, they would have no future payments to make. I do think, if we abolish life-memberships, we shall receive a large number of resignations—men that have been with us for several years, but that have lost their interest in the Association.

Dr. SQUIBB.—The question is to drop the present Section 8, for the future only, and make it bear upon the past just as it has always done; simply to alter the Constitution for those members who may in the future join the Association. That is the proposition, and if it is not distinct to all the members before they vote, we had better hear from them.

Mr. EGGLE.—I think I represent those of the Association who are not life-members, particularly the younger branch of the Association. I have been speaking of this matter to several of them, and they express their complete willingness, if this proposition is submitted and carried, whereby

life-members relinquish their right to life-membership, to vote for the new proposition of making the length of time for which a man shall contribute greater, or the payment of a sum such as Mr. Colcord proposes.

• Mr. TAYLOR.—The proposition to extend the time don't help us ; all our life-members receive the Proceedings gratuitously, and will continue to do so, and the extension of the time is merely pushing the thing off a little longer. Our life-memberships is still an incubus. After fifteen years we are still in the same position. We are not getting out of the trouble.

Mr. HAVILAND.—I would ask the chairman of the Business Committee what is the position of the proposition to increase the dues.

Dr. SQUIBB.—That will come up afterwards ; it depends upon the proposition now before the meeting.

The PRESIDENT.—It is the proposition of the chairman of the Business Committee that we are to vote upon now.

The reading of the proposition was called for.

The SECRETARY.—The proposition is simply to abolish life-membership.

Dr. SQUIBB.—It carries with it the addressing of each member.

Mr. BIGELOW.—That proposition, stated in a plain way, is to abolish life-membership for the future. That vote goes on to our record in contradiction to the provisions of the Constitution and By-laws. Is it an amendment to the Constitution ?

Dr. SQUIBB.—To drop a portion of it is an amendment to the constitution. It is making it better, which is the meaning of the term amendment.

The vote was then taken, when forty-five members voted in the affirmative, and seven in the negative. The resolution was declared carried, more than three-fourths of the members voting for it.

MR. BARR.—I take this opportunity to withdraw my life membership, and will pay dues in the future.

Dr. SQUIBB.—Now the amendment to the Constitution comes up for vote : that Article II., Section 4, be so amended as to read as follows :—“ Every member shall pay in advance into the hands of the Treasurer the sum of three dollars,” etc. This three dollars was originally two dollars. That is the change in that paragraph. “ Members shall be entitled, on payment of five dollars, to receive a certificate of membership, signed by the President, one Vice-President, Permanent Secretary and Treasurer,” etc. It has hitherto been “ Vice-Presidents.” The fact is that it is very difficult to get the signatures of all the Vice-Presidents to the certificate. It has to be sent all over the country for that purpose, at a good

deal of inconvenience. This has been discussed before, but was indefinitely postponed,—this point of making one Vice-President sufficient. The Treasurer's name is left out of the Constitution, although there is a place for his name on the certificate, and although he has charge of them. His name has been left out of the constitutional provision on this subject, and it is now proposed to introduce his name here, and to limit the number of Vice-Presidents to one. Our Vice-Presidents are scattered all over the country, and these certificates have to be sent by mail to all three of these gentlemen. Occasionally one is absent, and the certificate has to follow him up wherever he goes to get his signature before it can be conformable with the Constitution, which says "Vice-Presidents." Our Constitution says that the Association shall have one or more Vice-Presidents. Custom has made it three. It is now proposed to say the certificate shall be signed by one Vice-President.

MR. HAVILAND.—I don't know but what it would be an improvement to say one or more Vice-Presidents.

DR. SQUIBB.—When this matter was discussed before, a similar proposition was made. The difficulty is that one man will want the signatures of all the Vice-Presidents, which makes it just as necessary to send the certificates about the country as now. I recollect that Mr. Parrish said, in that discussion, "If I was going to have a certificate, I should want all the Vice-Presidents on it." Some members might be satisfied with one, but if they were not they could urge the constitutional provision that they were entitled to "one or more;" whereas, if it is a constitutional provision that one Vice-President shall be sufficient, they would be satisfied with one. Four names to the certificate at that time were considered to be enough, but it was late, and the motion was not acted upon. I am opposed to this tinkering of the Constitution, but as these other changes were in progress, and must be made now, it seems better to change it now as read.

It was now moved and seconded to increase the annual dues to \$3.00. The vote standing fifty-four ayes, the resolution was declared adopted, no votes being cast against it.

It was moved to increase the fee for a certificate of membership hereafter to \$5.00.

MR. CASPER.—Will that apply to those who have not yet received their certificates?

DR. SQUIBB.—It applies from the 15th day of September. Those members who have now signed the Constitution get them at the present price.

MR. SHINN.—Those members who have been entitled to their certificates, and have not received them—

DR. SQUIBB.—Get them at the old price.

MR. BRINGHURST.—Those members who have been elected, but have not perfected their membership,—will they get them at the old price?

DR. SQUIBB.—Yes, sir.

The motion was carried by a vote of fifty-one in favor, without any dissenting votes.

The motion to make it requisite for only one Vice-President to sign the certificates of membership elicited some discussion.

MR. TUFTS.—That don't prevent them all from signing, if it is convenient to get them.

DR. SQUIBB.—It makes it constitutional for only one. If we increase to five, as we may, one will still be sufficient.

MR. TUFTS.—Sometimes it is perfectly convenient to get them all on.

DR. SQUIBB.—The object is just to avoid that, and have the thing fixed without any elasticity about it. If the man himself chooses to go and get the United States to sign the certificate, that is all right.

MR. BREWER.—I suppose that will give latitude to the Treasurer to apply to such Vice-President as may be most convenient.

DR. SQUIBB.—The most obvious custom would be to take the first Vice-President.

MR. BREWER.—We regard them all as very good men.

DR. SQUIBB.—Another difficulty has been that the man who gets the certificate first, if he be not the first Vice-President, signs his name first; and for that reason it is desirable to limit it to one.

The motion was adopted by a vote of fifty ayes, without any dissenting vote.

The motion to require the signature of the Treasurer to the certificate of membership was carried unanimously, by a vote of fifty-five ayes.

The report, with the amendments to the Constitution, as a whole, was then declared adopted, as follows:

Whereas, It is recognized as a necessity that the Association should adopt some means of increasing its revenue in proportion to its increasing expenditures, be it therefore

Resolved, That Article II., Section 4, of the Constitution be so amended as to read as follows:

SECTION 4.—Every member shall pay, in advance, into the hands of the Treasurer, the sum of three dollars as his annual contribution; and is liable to lose his right of membership by neglecting to pay said contribution for three successive years. Members shall, on payment of five dollars, be entitled to receive from the Treasurer a certificate of membership, signed by the President, one Vice-President, the Permanent Secre-

tary and Treasurer,—covenanting to return the same to the proper officer on relinquishing their connection with the Association.

Resolved, That Section 8 of Article II. of the Constitution be dropped and its provisions be abandoned; to take effect from Sept. 16th, 1867.

Resolved, That it be considered not entirely equitable to those who have joined the Association under the constitutional provision for life-membership, to deprive them of this privilege and advantage without their consent, although all who have joined must have seen the provision in the Constitution which provides that it may at all times be altered or amended; and, therefore, be it further

Resolved, That the Treasurer shall forward to each member of the Association who joined it previous to September 16th, 1867, the following printed communications, enclosing a printed and stamped envelope for return, and having these resolutions printed upon the same sheet:

AMER. PHARM. ASSOCIATION,

186

DEAR SIR,—Enclosed I beg to submit certain resolutions of the Association, whereby life membership as a constitutional provision has been abandoned for the future.

This change is made because it is found to be practically impossible to keep the Association in a respectable financial condition under the present plan of furnishing so large and so rapidly increasing a class of members with an expensive volume of Proceedings gratuitously, and pay the other necessary expenses of the Association, which must continue to increase annually if the organization continues to increase in numbers and usefulness.

Under these circumstances the Association asks all its members, individually, who joined it previous to this change, to relinquish their right to life membership, and to allow their names to be continued upon the active contributing roll.

In case you should not think proper to accede to this proposition, the Association will of course keep faith with its members, and retain its list of life-members, without claiming its right to change the Constitution in its application to them in this respect, as far as the past is concerned.

Enclosed you will find two blank forms: the one agreeing to relinquish the right of life-membership, the other declining to relinquish it. Be pleased to sign which ever of these may be most acceptable to you, and return it to me in the enclosed stamped envelope, as soon as possible.

Very respectfully yours,

Treas. Amer. Pharm. Assoc.

(Date.)

To the Treasurer of the Amer. Pharm. Association :

DEAR SIR,—In compliance with the request of the Association, I hereby waive my right to a life membership, and its promised advantages.

Very respectfully yours,

(Date.)

To the Treasurer of the Amer. Pharm. Association :

DEAR SIR,—Upon consideration of the subject, I cannot consent to relinquish my right to life-membership, as provided for in the Constitution at the time I signed it.

Very respectfully yours,

Wm. A. Brewer, of New York, offered the following resolution, which, in compliance with his request, was for the present laid upon the table.

Resolved, That while we hold to a high appreciation of the beneficial influence of the accustomed social entertainments tendered to the members of this Association and their friends by the members of the drug trade in the various cities where the Association meets from time to time, and while we cherish with gratitude and thankfulness the good feeling which prompts these munificent exhibitions of generosity, we cannot but hope that hereafter the solicitors of the contributions for such purposes may get permission from the donors to devote a moiety of said contributions to the endowment of a central library and a cabinet of materia medica and collateral matters, for the purposes and use of the Association.

MR. BREWER.—I would merely state, in offering the resolution, that it has been a matter of serious grief, I may say, on the part of those who are interested in the objects of this Association, that we have not, as a national institution, any cabinet of *Materia Medica*. My attention has been more particularly brought to the consideration of this want by a conference, some years ago, with Prof. Agassiz, who said he had travelled the country over to see if there was any such collection that was worthy of the nation, and although he had found some that were very respectable for the Colleges of Pharmacy that held them, he didn't think there was such a cabinet of *materia medica* in this country as should exist under the auspices of this Association, and he urged me vehemently to use my efforts for the establishment of such a thing, although personally he had no particular interest in it, except as a man of science. It strikes me, sir, that we need a library of choice books—rare books—and we need a cabinet that shall embrace the very best specimens of articles used in Pharmacy and the collateral branches, that we may be not only willing to show, but proud to show to visitors from abroad. It strikes me this must commend itself to the approbation of every member of this Association and the community at large; and I will state, as one reason why I bring it up at this time is, that there is one person I heard of that contributed generously to the entertainment which I understand is proposed to be given to this Association at the close of this meeting, who said, "Yes, I will give willingly to such an entertainment, but I would give double for something of a permanent value that we can look at hereafter—I don't

know but I will give four times the amount." That gentleman contributed \$25. He would have given \$50 in a moment, might have given \$100, and I doubt not \$500 to such an object as is contemplated in the resolution.

DR. SQUIBB.—The principal and only objection to the passage of such a resolution is that we are a migratory body.

Dr. E. R. Squibb read a paper by Thos. H. Doliber, on the use of Benzoin in Ointments, which is supplementary to his paper on benzoinated lard, published in the Proceedings of the Am. Pharm. Ass. for 1866, page 224.

MR. LINCOLN.—I rise merely to confirm the conclusions arrived at by Mr. Doliber. I have not made as many experiments as he has, but what I have made have been entirely satisfactory in using tincture of benzoin instead of the gum. In a paper which was offered by me at Cincinnati, on lard, the use of the tincture was then advised. Instead of the simple tincture of benzoin, I have been in the habit of using the compound tincture, without the aloes, which seems to me to be an improvement, receiving the benefit of the styrax and tolu. I wish, while up, to correct some errors in regard to the different names of the process, it sometimes being called benzinated, benzoinated and benzoated. The first is certainly wrong, but was used in my paper on lard without authority, and was afterwards corrected by Secretary Maisch, at the meeting at Detroit. The term benzoated might be used to indicate that benzoic acid was used in the process, which I do not believe answers the purpose intended.

DR. SQUIBB.—It seems to be desirable in benzoinating ointments, to be entirely devoid of stimulating properties, that as little benzoin should be added in the process as possible; the least possible amount which will accomplish the object of preserving the ointment is that which should be got at, because simple cerate and those other cerates intended as emollient dressings should be entirely free from stimulants. That is the objection to their rancidity, that rancid ointments are stimulating. The point to be attained is between rancid ointments on the one hand and stimulating ointments on the other.

MR. BRINGHURST.—I have made hair grease with purified lard and tallow, washing the lard and tallow, on the French plan, with salt and alum, and washing that afterwards with distilled water, and the grease has kept perfect for several months. That purifies the lard, and the salt and alum throw down the particles that are likely to decompose.

MR. MARKOE.—There is no necessity of macerating the benzoin. The tincture may be quickly made by rubbing the benzoin into powder, and then triturating it with the alcohol. All the benzoin will go into solution, and the filter will remove impurities.

MR. EBBELE.—I would like to follow up these remarks by saying that when this subject was first brought up before the Association, two years

ago, I interested myself in it, and when Mr. Doliber's paper came up at the last session, I set myself to work to determine the therapeutic value of these ointments. I followed it up very closely, and can add my testimony to the efficacy of this process. Having submitted this ointment to severe tests in my neighborhood, I am convinced that its therapeutic value is not altered in the least; but where ointments are intended to be extremely bland, there seems to be some objection to adding benzoin, from the amount of stimulant, the alcohol sometimes playing a bad part, particularly if they are recently made. In regard to the change of iodide of potassium, I don't think that Mr. Doliber will find the difficulty he speaks of if he avoids using iron. I overcame this objection of undue stimulation, by balsam of Peru, in a small quantity, which seemed to answer the same purpose. The tincture of benzoin can be incorporated nicely with the fluid fat. While the fat is quite liquid, it will bear the balsam of Peru on the surface. It should be added on the surface, and stirred gradually until it becomes cold, to prevent the separation of the balsam. I furnished a quantity of this tincture of benzoin to a hog-butcher, with the directions how to prepare it. It was well stirred for a long time, to dispel all the spirit, so it is bland, so far as spirit is concerned.

DR. SQUIBB.—It acts as a stimulant as far as benzoin is concerned.

MR. BRINGHURST.—I have made ceratum plumbi subacetatis, substituting for white wax yellow wax, and had the ointment keep several weeks—as long as we wanted to use it. If exposed to the light and the atmosphere, the change from the subacetate to the carbonate makes it white. It cakes, but it does not decompose. I have not examined this yellow wax for the substance which constitutes the preserving principle in it, but it is something analogous to benzoin. I prepared some specimens of simple cerate for exhibition and trial, which I leave for the members to examine at their leisure. Dr. Squibb gave me some specimens of wax which came from Mr. Phillips, I presume as good wax as can be found in the market. I made up ointments with this, and also with some selected yellow wax. I think, judging from the odor, you will find that made from white wax has a rancid smell, although they have not been exposed to the air. The two specimens made with strained and selected yellow wax have kept perfectly. There is no rancidity about them. They are made of the same lard, and have been made now nine or ten months. I don't know what the preserving principle is, but it has a balsamic odor, and it must be that which makes it preservative. I have satisfied myself that yellow wax is preferable to white wax.

MR. MARKOE showed some samples of ointment made at the Massachusetts General Hospital.

MR. BRINGHURST.—I think there is a slight rancidity to them. I think it is with the lard. The lard in my samples was not prepared at all. It

is pure leaf lard. We get it very good; it has never been treated with benzoin or anything else.

MR. MARKOE.—In the Boston market we can't get good lard.

DR. SQUIBB.—I desire to offer one word of caution. The astronomers have what they call a personal equation, that is an allowance to be made for every person. When we undertake to write a paper of this kind, our experiments are made carefully, and we scrutinize the character of these preparations, and if we find they keep, it is very competent for us to say the process is an improved one; but when that process comes to be applied to ordinary commercial materials it is not always successful, because the same skill is not applied in making them, or the same material is not used. This comes up in connection with another subject—the tincture of chloride of iron—in investigating the objections to the formula in the Pharmacopœia. I find it almost always depends upon the absence of strength in some of the preparations—the hydrochloric or the nitric acid. If that is not strong enough it will not oxidize the whole of the iron, and the solution deposits. So, while we accept these results as very useful, it leads us to scrutinize the matter more closely. A man who has been through the experiments has an education which few of us have, and when we undertake to make a certain preparation, we should not be surprised if we failed the first time. I don't want to throw odium upon these papers, because when first put into practice they are not always practicable.

MR. BREWER.—I want in this informal talk in which we are accustomed to indulge, to raise a question which may appear like that of a tyro, and it is in some respects; that is, whether there is any element in benzoin beyond benzoic acid that is useful to preserve these ointments. I simply throw that out as a question.

MR. TAYLOR.—I have tried benzoic acid and it does not answer the purpose. It must be the aromatic principle.

MR. WIEGAND.—My experience is that benzoic acid will not do it—benzoin will do it.

MR. LINCOLN.—There is considerable misapprehension in regard to benzoin. I have found apothecaries who have rubbed up the acid for convenience.

MR. MARKOE.—In regard to the samples from the Massachusetts General Hospital, I would state that they are made from the commercial article of lard.

MR. BIGELOW.—I would like to ask if it is incumbent upon the apothecary to use lard. Is an apothecary expected to use lard? For myself I discarded lard from my prescription case ten years ago, from the difficulty of getting good lard in the summer time. I use wax, castor oil and spermaceti. In the summer I keep it about the consistency of lard. In dressing blisters, by adding a few drops of nice glycerine it makes a

much nicer ointment than lard ointment, and is always sweeter and gives better satisfaction, as far as my experience is concerned, than I can get from ointment made according to the United States dispensatory.

Dr. SQUIBB.—If the gentleman will refer to the last proceedings, he will find a discussion on the same subject. I was sorry that it was not inserted more fully than it is. Make a man stand up for what he says and he will be more careful the next time, if he talks loose.

Mr. BIGELOW.—The change to spermaceti has never to my mind made any variation between me and the official preparations. I could hardly be charged with substituting anything else, although I knew it made a much cleaner preparation. For that reason I take the liberty to use my own judgment in these preparations, but I have often thought whether, in a strict pharmaceutical sense, I had a right to depart from the use of lard in these preparations.

Dr. SQUIBB.—That is a difficult question to decide, and there is no way to decide it but for each man to decide for himself. Substitutions are inexcusable for pharmacutists. Then comes the question whether this be a substitution or not, and each member must decide that by his own conscience. We all know that it would be a very great evil if substitutions of any kind were sanctioned by any practice, but every man who is an educated pharmacist, as our members generally are, will have a sensibility sufficiently alive and sufficiently potent to direct him aright under such circumstances.

Mr. SHINN.—I think it would be well for the committee of this Association on the Revision of the Pharmacopœia to take note of the benefit of using yellow wax instead of white wax. I think the experience of two years or more has been very decided as to the advantage of yellow wax. It ought to be a national change. If the next pharmacopœia could be altered in this respect, I think it would be an advantage.

Mr. BRINGHURST.—I have tried it with suppositories for stiffening cacao butter. The white wax will in time give it a coffee odor, stale; but those made with one half yellow wax will preserve the original odor of the cacao butter for any length of time.

The Secretary read the following papers by E. S. Wayne, of Cincinnati: Bitartrate Potassa from Catawba Wine; on American Opium; on solution of Bimeconate of Morphia; on Quicksilver in North Carolina; on Mata, and on the Gizzard of the South American Ostrich.

The subject of native wines and of the collection and purification of tartar deposited from the same, was then discussed.

Evan T. Ellis read a paper on Cryolite and the uses of this mineral for preparing soda. The paper was accompanied by

specimens of the mineral and various products of manufacture obtained from the same.

Mr. ELLIS.—The specimen of bi-carbonate of soda appears to be very fine. This specimen is ground too coarsely, otherwise it is a very good article. The hot-cast china is scarcely in the market yet, although we have seen it in Philadelphia. The first market was, of course, the West. The cost is twenty per cent. higher than flint glass at present.

Mr. SHINN.—They told me at the factory they could furnish it at twenty-five per cent. less than flint glass.

Mr. TURTS.—This mineral was very rare and was only found in cabinets until it attracted attention from the purposes for which it is now being used. It attracted attention from the experiments of Rose, who found a larger amount of readily obtainable aluminium in this than in any other mineral. It comes from West Greenland, and is associated with some very beautiful minerals—galena, sulphate of lead and copper. In this specimen I see some specimens of carbonate of iron, and some galena, also magnetite and copper and iron pyritis. I have seen specimens combining all the minerals in a beautiful form. At this same locality, Kangerdluavuk, West Greenland, there are other very fine minerals.

A volunteer paper on the relative value of the rhizome and rootlets of *Podophyllum peltatum* was read by Wm. Saunders. According to the author's experiments, the rootlets yield more resin than the rhizome.

Dr. SQUIBB.—This is an important subject, and I think it would be well for the Association to exchange views upon it. The pharmacopœia directs the rhizoma as the part that should be used. That is intended to exclude the radicles.

Mr. MAISCH.—The language of the pharmacopœia is very frequently not sufficiently expressive in describing the part to be used. In the case of valerian it says the root. We use the root and rhizoma; so in the case of *epigelia* and *serpentaria*; *veratrum viride* always comes with the radicles attached. Are they always removed by pharmacutists? A question would properly come up here in regard to the value of the radicles in comparison with the rhizomes. Another point would have to be determined, and that is the time of collecting; it might be possible that at one season of the year the radicles of *podophyllum* contain a larger amount of resin than at another.

Mr. SAUNDERS.—Those were collected late in the fall.

Mr. MAISCH.—That would be the proper time then to collect it.

Dr. SQUIBB.—The distinction between the rhizoma and root was discussed in the committee revising the pharmacopœia. There was a little disposition on the part of the committee to refer to the etymology of the words,

but as a distinct line of demarcation could not be drawn it was decided, so far as my memory serves me, to say "rhizome" when the rhizome exceeded in volume the radicles, and to say "root" when the rhizome was small and the radicles were the principal parts, as in valerian, spigelia, etc. It was proposed by Mr. Taylor to say rhizome and root of valerian. That was opposed, because it was thought it might make people think there was something else meant when it came to such a thing as bulbous roots where the rhizome is very large and the radicles very small. There might be a proper distinction drawn to separate the radicles and use the rhizome alone. There is a margin. These distinctions go from a very small radicle and very large rhizome, to a very large radicle and very small rhizome, and it was difficult to draw any line of distinction which was practical; therefore the pharmacopœia chose to say root, where it meant rhizome and root, and say rhizome where the rhizome alone was intended to be used.

MR. MARKOE.—This discussion shows the importance of the study of botany. It is almost entirely neglected, and but a small portion of the apothecaries can judge correctly between the terms root and rhizome, but make the term root answer for all. A great majority don't know which is root and which is rhizome.

MR. EBERLE.—Pharmaceutical Colleges always teach that matter.

MR. MARKOE.—I made the remark, that pharmacutists might encourage the study of botany. To the pharmacist I consider it second in importance only to pharmacy.

G. G. C. SIMMS, of Washington, D. C., read a paper advancing the claims of Dr. Schæffer, of Washington, D. C., to the priority of the use of protoxalate of iron as a remedial agent.

DR. SQUIBB.—I would like to ask the question whether this be a new application of the oxalate of iron, as Dr. Schaeffer supposes it to be? My impression is that not only the protoxalate of iron, but its uses in these respects, dates a good deal farther back than that. That is the fact, if my memory is to be relied upon. I simply ask the question.

MR. SIMMS.—I am inclined to think so myself, by its being used for optical purposes.

DR. SQUIBB.—It was used for mechanical purposes at a much earlier date. Its use in medicine is the only point at issue, and I believe that was stated by some of the old pharmacologists a long time ago.

MR. EBERLE.—Cannot a better composition be made by double decomposition between oxalate of ammonia and sulphate of iron than by decomposition between sulphate of iron and oxalic acid directly? Is the process by direct action between oxalic acid and sulphate of iron really the best process? It is evidently the cheapest, but is it the best? Where it is

not wanted in the form of crystal it is not important that this double decomposition should be used.

Dr. SQUIBB.—This way of making it, by the decomposition of sulphate of iron and oxalic acid, does not need that this salt be crystallized. It is very easy to make a proto-salt of iron in solution by dissolving the iron in sulphuric acid, then taking it while in solution, and precipitating it by a solution of oxalic acid in ammonia; and I should think that would be a better way than the old one, because of the less amount of per-salt which would be formed. The simple decomposition of sulphate of iron and oxalic acid is equally good as a matter of judgment; of course it is much cheaper.

P. W. Bedford read the following papers, contributed by A. T. Moith, of Fishkill Landing: On Lac Sulphur, on Poison bottles, and on sweet Spirit of Nitre.

Mr. MARKOE.—In regard to the specific gravity of sulphuric acid, it is almost impossible to find in commerce sulphuric acid of the specific gravity of the U. S. Pharmacopœia, and especially to find any free from lead.

Dr. PILE.—I should like to know if there is some way of testing sweet spirit of nitre, to know whether it answers the pharmacopœia.

Mr. MAISCH.—The only proper test would be to estimate the amount of nitrous ether which it contains, an accurate and easy method for that I don't believe we know.

Dr. SQUIBB.—The best practical method is to ascertain the amount of nitrous ether separated by washing with water. The whole of it cannot be separated, but that which contains five per cent. will separate three per cent. nitrous ether. The ratio separated is in proportion to the amount contained.

Mr. MAISCH.—That depends upon the strength of the alcohol.

Dr. SQUIBB.—That is determined by the specific gravity. The specific gravity is no test for the ether in spirit of nitre, but it is for the alcohol.

Mr. MARKOE.—The British Pharmacopœia directs, as a volumetric test for estimating the amount of nitrous ether in sweet spirit of nitre, that it be agitated with twice its volume of saturated solution of chloride of calcium, [chloride of calcium 4 oz. avoirdupois, distilled water 5 fl. ounces,] in a closed tube; two per cent. of its original volume will separate as nitrous ether and rise to the surface of the mixture. This indicates ten per cent. of nitrous ether, as eight per cent. remains unseparated. The process of the British Pharmacopœia, 1867, is the one described by Prof. Redwood, and published in the London Pharmaceutical Journal, March, 1867, p. 508. This process gives a stronger preparation than the U. S. Pharmacopœia, which only contains five per cent. of nitrous ether.

The several volunteer papers read at this session were accepted, and referred for publication.

Prof. Bedford, on behalf of the Committee of Arrangements, gave notice that an excursion on board the steamer "Thomas Collyer," was intended for Friday Afternoon.

On motion, the Association adjourned until 8 o'clock, P. M.

Fifth Session.—Thursday afternoon, Sept. 12th.

The meeting was called to order at 3½ o'clock, President J. Milhau in the Chair. The reading of the minutes of the fourth session was dispensed with.

MR. MAISCH.—I wish to call particular attention to a subject contained in one of the papers by Prof. Wayne, read this morning, namely, the improvement, or the new mode of purifying cream of tartar. You will remember the old way of purifying cream of tartar is to boil it with clay and with animal charcoal until the cream of tartar is white. Prof. Wayne proposes to take advantage of the easy purification of Rochelle salt. He converts impure tartar into Rochelle salt, purifies this by animal charcoal, and then precipitates cream of tartar by the addition of muriatic acid. In a private note he has sent to me he makes the following allusion to the process: "As a working process I think well of it, as it saves an immense amount of solution, recrystallization, etc. There is no trouble in it compared with any other process I know of. Convert the tartar into a double salt with soda. Bleach with animal charcoal, etc. I can do more with an apparatus holding five or ten gallons, than by the other process in tanks of one hundred gallons' capacity, and work quicker." I think that deserves attention, in case the crude tartar should be separated from our American wines. One objection to it heretofore has been the high price of labor, as compared with Europe, and for that reason the European tartar was purified and bleached in Europe. If this process really effects it, it is such a considerable reduction in the cost and in the labor, that it is well worth while to call particular attention to it.

THE PRESIDENT.—He says nothing about the expense of doing it.

MR. MAISCH.—Simply because there has not enough been collected; but in his private note he says that he has made arrangements with some of the wine growers, and hopes to have a large quantity of American crude tartar in the market this season.

DR. SQUIBB.—In a question submitted to some one in regard to this subject, the answer was that for some years yet the amount of tartar would not be sufficient to test the yield, or become of very much importance as an industrial product. I suppose these conclusions are not sufficient as

yet to produce it. It was then remarked that, in proportion to the wine made, the tartar yielded was not so great in this country as abroad,—not anything like so great; and it was accounted for by some one—perhaps myself—who had perhaps seen the suggestion somewhere, that the soil here was freer from potassa salts, in consequence of the forests having been cut away.

MR. WIEGAND.—The late Mr. Reyfuss tried the experiment, apprehending some such thing,—whether he heard it or whether it was presented to his mind I do not know,—by adding to the soils manure with salts of potassa, and found a greatly increased result.

MR. MAISCH.—I should not suppose that the want of potassa salts in the soil would decrease the amount of tartaric acid, or the reverse, that the increase of the potassa salts would increase the amount of tartaric acid. The true question then would be whether the tartar could not be obtained notwithstanding the apparent or supposed deficiency of potassa in our soils.

MR. PILE.—That method of converting the cream of tartar into Rochelle salt could be applied to determining the purity of our commercial cream of tartar. Take cream of tartar of all grades of purity; it is difficult to ascertain how pure it is. The adding of soda to it would be an easy way of determining the purity. Would that leave the impurity, which is generally bone earth?

DR. SQUIBB.—The addition of a volumetric solution of potassa has been used, which is the same thing in effect. In proportion to the quantity of potassa dropped in to render the cream of tartar soluble, the insoluble residue would show itself.

MR. MAISCH.—Nearly all the substances which are used for adulterating cream of tartar are very sparingly soluble in water, and some of them entirely insoluble. The natural impurity in cream of tartar is tartrate of lime, and that is soluble to a considerable extent in tartrates. Purified cream of tartar, when purified as far as possible by repeated re-crystallization, still retains about three to five per cent. of tartrate of lime, which cannot be removed by re-crystallization merely because it dissolves in the cream of tartar, and because it dissolves in the more soluble tartrates into which we may convert the cream of tartar. The amount of lime must be estimated in the usual way.

DR. SQUIBB.—I should have said one or two per cent.

MR. MAISCH.—It is more: not less than three; I believe it is five per cent.

MR. PILE.—Does that limit extend to this new cream of tartar spoken of by Mr. Wayne?

MR. MAISCH.—I don't know whether Mr. Wayne has examined that. I should suppose not, from the fact that the German pharmacopoeias have a process of purifying cream of tartar—they don't allow the use of commercia

cream of tartar—which consists in washing it with dilute muriatic acid. That takes up the tartrate of lime, and dissolves a small portion of cream of tartar. In this way the entire amount of tartrate of lime is removed, and the remaining salt is pure cream of tartar. Such a cream of tartar is found in Europe in commerce under the name of cream of tartar freed from lime. It is made on a large scale.

Mr. KREHBIEL.—I have seen cream of tartar adulterated with lime and sulphate of lime, containing five per cent. of the latter.

The Business Committee brought forward the suggestion of the last President, Frederick Stearns, regarding the permanency of the Committee on the Internal Revenue Law.

Dr. SQUIBB.—President Stearns suggests the appointment of a committee on Internal Revenue, the chairmanship of which shall be permanent, and continued as long as it may be needed. Merely for the sake of bringing the subject before the Association, I move that the subject suggested by the President of a permanent, or a partially permanent committee on the Internal Revenue law, be adopted. I would like to say that, as an individual member, I would be opposed to such a committee. We have had already two committees on that subject. We have done all that the Association can in good taste do. Any other pushing we may give to the subject will be in bad taste, and possibly have as little effect as what we have already done. If we undertake to do the work in the way alone in which many think it can be done,—namely, by raising money to effect it,—I should oppose that very much. If it cannot be done directly, through proper and legitimate channels, I would oppose its being done at all. At our last meeting, in Detroit, it was suggested, and upon that suggestion the committee of last year was raised, that the committee of the preceding year had not attempted the matter in the line most likely to be successful; that in order to succeed in effecting any object which the Association had in view, the proper way was to go to Congress direct,—not to approach the executive department of the Government in Washington at all, but go to Congress direct, and use the influences which political acquaintance, which political knowledge of the members of Congress would enable us to bring to bear. The Committee of the previous year went to the Commissioner of Revenue, and it was through him that all the efforts of that Committee were made. The ground taken at the last meeting was that this was an erroneous and misjudged action: that we should have had nothing to do with the Commissioner, but gone to Congress; that each member should have made his personal influence to bear upon the Congressman who was his representative in Congress; and that the matter should have been done in that way, and, by the aid of some little expenditure of money, much might be accomplished in that direction. With that view another committee was appointed. That Committee has reported, without

alluding to that mode of action. I am glad of it, for I should be sorry to see any indirect way of obtaining our purpose. There has been abundant evidence that Congress know all we can tell them on the subject—their own committees, the newspapers of the day, every source of evidence is before them—and as one of them said very roughly, “We are here with the whole government from whence to derive our information, and yet you come here to teach us what our duties are!” It is well known that not one phase of this alcohol question has not been thoroughly and entirely ventilated before the public and Congress, and everything that has been stated here and elsewhere can be gleaned from congressional speeches. Upon this ground, and upon this ground alone, I should oppose the raising of another committee at this time upon this subject.

Mr. COLCORD.—When the first committee was raised, it was raised with a view of having a standing committee, which the government and its executive department could approach and ascertain the views of the American Pharmaceutical Association. The Commissioner was notified that such a committee was raised and was at the service of the executive department of the government, and the Commissioner called upon them for what information they had to give, and it was offered to the government in that capacity; that is about as much as we ought to do to be of any use. The Commissioner availed himself of that committee and we performed a good deal of labor. As Dr. Squibb says, in applying to members of Congress, we should accomplish nothing, and all the use of a committee would be to offer its services in case the government wanted information.

The PRESIDENT.—Is it not possible to suppose that the increased frauds that have been committed on the government will render them more willing to receive advice upon the subject? Circumstances may arise upon which it may be just the moment to have a committee from this Association ready to go there and throw their weight in favor of the change, which is so desirable in regard to the tax. I have no doubt that a great many of them must be disgusted at the manner in which this tax is collected, and although they may have had better hopes, I think that, at a later day, these people will become so bold and act in such a way as to induce them to put a stop to it. This committee may not be called upon at all to act, but if, as I said, the opportunity offers, they would be ready to do their duty. I simply throw that out as a hint.

Mr. COLCORD.—I will state in this connection, that the same Commissioner that treated us so fairly is on the same work now in Europe, and has been collecting information there and might want to use a committee of this Association. I refer to Mr. Wells. He has both the internal revenue and foreign importations in his charge now and has to report to the government again, and might want such a committee.

Dr. SQUIBB.—He is well aware that the Association is at his disposition,

and he can call upon the president for any aid he wants in that respect. He was made aware of that last year or year before last, and he feels a good deal of confidence in the Association to render him any service, and if he needed any such thing he would be very sure to go the right way to get it, namely, to the President of the Association. I think in that way the matter might be safely left. He is in earnest, and so far as I know, honest in everything he undertakes. He has had me before him this year. I gave testimony upon certain points which he desired to have in regard to the revenue law, and much more in regard to the tariff, and I have one of his copies in my hands with a promise that I will go over it and attempt to carry out a suggestion I made before the Committee on Ways and Means in his presence last winter, namely, that a large proportion of the crude drugs ought to be on the free list, as well as articles manufactured that cannot be manufactured here; he asks me to go over the tariff and designate the articles to which I referred. I stated in my testimony that nearly three-fifths of the whole enumeration of the tariff of this country is occupied by the drug list—in numerical force, I mean, of items—and it is perplexing to Congress; the amount of duty raised on it is not commensurate with its volume by any means; it is the general belief that the amount of duty raised on drugs does not cover the expense of collecting that duty, while it opens the door to frauds and chicanery of all sorts. In that view, I gave my testimony that the list of foreign drugs dutiable should be reduced very materially. With that, he placed the list in my hands, and I promised to go over it and mark every article that ought not to be taxed. You find such articles as belladonna, hyoscyamus and hundreds upon the list, are imported in a few hundred pounds of a very low value. When they come to pay *ad valorem* or specific duty, the amount raised is trifling in the extreme; there is no good reason why they should not be on the free list, the numeration and the complications in the custom houses thus reduced and the revenue not materially abated. I merely allude to that in passing. I don't consider the committee is necessary in the view that is urged. The Commissioner is thoroughly acquainted with the Association through its committees, and knows he can depend upon it.

The PRESIDENT.—You spoke of the influence to be exercised with members of Congress. Our friends can individually do a great deal by speaking to their respective representatives in Congress. I think that between this and the time of meeting they may have effected a good deal. It seems to me the opportunity should not be missed to speak to any member of Congress, who happens to be known to one of our members, on that subject. You spoke of the cheaper articles. I think your objection to high duty would apply to those of high prices with equal force. For instance, Turkey rhubarb. Why should not the poor man be able to give a dose of good rhubarb to his child, that is dying, may be, as well as the rich man. Why should its price be so much increased by the duty, which

is, of course, in proportion to its cost, very high. It makes the article very costly. I think we ought to take the part of the poor man in this matter; for the poor men are in the majority. There are a great many emigrants that arrive here without a penny, and they ought to be able to get good medicines at a price within their means, and if the government can do without this paltry sum, let them do without it.

Mr. BROWN.—I differ with Dr. Squibb on this subject. There is no reasonable objection I can learn of why a committee should not be appointed; but if committees are of any use at all, I think it is important for us to have a committee ready to receive communications from the government. A committee cannot injure us, and I therefore think we had better have a committee appointed.

Mr. MOORE.—I don't see any harm in a committee, nor any good. I think it is useless. As Dr. Squibb has said, everything was done by this committee that could be done in regard to the executive department of the government, and I don't think the pharmaceutical profession in the country is rich enough to have any influence on Congress. There are two ways in which you can influence them—one is by money, the other by wine. I have had a good deal of experience.

The PRESIDENT.—They have some regard for popularity, and if the poor man is allowed to vote, he is of some importance. When we obtained the law, many years ago, to prevent the importation of bad drugs, we didn't spend a cent to influence Congress, but we did work day and night. I had every member of Congress prepared before he went, through his clergyman or his doctor or his friends, so that when it was presented to Congress it passed.

Mr. MOORE.—In this matter the members of Congress have all the light we can give them.

The PRESIDENT.—They are not perhaps aware of how much they will lose of their popularity. It is not for ourselves we are working, it is for the good of the public, and the public are those who vote for them. They are very sensitive to any loss of popularity.

Mr. MAISCH.—I don't know what Dr. Squibb knows about the *intention* of the remarks that were made at our last meeting at Detroit, in regard to the appointment of such a committee, but there was nothing said about raising funds. It was said, however, that each Member of Congress ought to be approached, but the way I understood it was that he ought to be reasoned with—that he ought to obtain information as much as possible directly from this Association, so that he might be enlightened on the subject before he went to Washington. That is the way I understood it, and that is the way it was taken down in the verbatim report.

Dr. SQUIBB.—I don't mean to say it was advised to use money for the bribery of members of Congress. I mean to say the influences were to be political influences, brought by the members having political influence.

Mr. Spence, who made those remarks, is a politician of great influence, and he was the person who alluded to this political influence to be brought to bear, such as would be influential on members of Congress; whether he meant any pecuniary influence or not, I am not to judge. He may have meant that the influences were to be money influences. We are none of us very apt to believe that money influences are not brought to bear on Congress. It would be difficult to resist the conclusion in my mind that money is used in that way, and that we as well as others might use money in that way. I believe it would be more effectively done if we chose to aim at it in that direction.

To test the sense of the meeting in regard to the recommendation, the question was put by the Chair: Shall the Committee on the Internal Revenue Law be made a permanent committee? The vote was taken, and, a division being called for, the Secretary announced that 12 members had voted in the affirmative, and 13 in the negative. The proposition was declared lost.

DR. SQUIBB.—Another suggestion of the late President is that the Treasurer is without a salary. He does not absolutely make a suggestion that the Treasurer have a salary, but the Business Committee will do it, and propose that the Association offer the same salary to the Treasurer for his labor that the Secretary gets, and that both Secretary and Treasurer have the same salary that was given to the Secretary last year. The duties of the Treasurer are becoming more and more laborious every year. That his labors are necessary to the Association no one need tell you; that they will be more laborious next year is apparent from our action in sending out these documents. It is offered to give him the compliment that we recognize his services. The salaries are complimentary—both of them—for the pay is not adequate to the duty.

MR. MAISCH.—That will be only for this year?

DR. SQUIBB.—We cannot change the Constitution now. The Constitution makes the Permanent Secretary a permanent officer, but does not say how much he shall receive.

MR. MAISCH.—I only wish to understand whether it is a constitutional amendment.

DR. SQUIBB.—It is not a notice for a constitutional amendment; that may be done hereafter.

The motion that the Treasurer for the ensuing year be paid the same salary as the Permanent Secretary was carried unanimously.

It was suggested to the members present to sign, during the present meeting, one of the blanks, as required by the

resolution passed at the morning session, namely, *in favor of, or declining to relinquish their right* to life membership.

MR. TUFTS.—I would like to ask for a matter of instruction in regard to this subject. I understand, as Dr. Squibb does, that every member up to the 15th of September, is to sign relinquishing his right as a life-member, or securing it; and, as I understand it, each life member so relinquishing it pays the dues for '67 and '68, \$2.00—not before that; and, acting on that idea, I have taken the \$2.00 from several members.

DR. SQUIBB.—That is the way I understand it.

THE PRESIDENT.—I hope the members from different States will think to form the nucleus for a College of Pharmacy. They are the best institutions for our profession, and will do more to create an interest in the profession than any other; and if they attend early to this, they may in many new places secure donations—lots of land in new villages—a thing we have not availed ourselves of, because the State here would not give us any. New States are more liberal, and every State in this Union will require a College of Pharmacy, some day or other, no doubt of it. It seems to me our members cannot too early attend to so useful an institution. Here we have had an up-hill affair altogether. We have been working for 38 years. We have sustained personally an institution which has done much good, and we have never received a cent from our great State; they would never give us anything to buy apparatus. A gentleman was sent up to Albany, and failed after remaining there some time—failed in obtaining any assistance at all; but if we had applied at an earlier day, when land was comparatively valueless, we should have had perhaps a block in the city of New York, and we would have been as rich as Columbia College and other colleges and institutions. It seems to me it would be well to attend to such a matter.

Ph. L. Milleman, of Chicago, read a volunteer paper on hydrated sesquioxide of iron, in which the preservation of the same, as an antidote to arsenic, by glycerine is advocated.

MR. MILLEMAN.—I have here two specimens, one made by the Pharmacopœia, the other by my process. That by my process is free of ammonia; that by the Pharmacopœia has more or less ammonia in it. I think my preparation will keep. It has not changed its color. They are both six months old.

MR. MAISCH.—In the case of hydrated sesquioxide of iron, it is not the color, it is the peculiar state of hydration which affects its value as an antidote to arsenic. When it has become crystalline it is not acted upon by the arsenious acid, and for that reason it is inert. Will the addition of glycerine prevent this change? In regard to the presence of a small amount of ammonia, I think that can be easily avoided if there is any objection to it.

MR. MILLEMAN.—What I want to get at is to prepare it quicker. Persons that have been poisoned can't wait; the person going for the antidote may have to walk four squares, and if the apothecary is five or ten minutes working at it, according to the Pharmacopœia, the patient may die before he gets it. By this process all that is necessary to do is to add the water and send it out immediately. You can keep this preparation on hand, prepared.

MR. MAISCH.—With the addition of glycerine, does it really not change its character?

MR. MILLEMAN.—It does not. I have had it tried in two cases. I have had as many as four cases come under my notice, after having it kept fourteen months.

DR. SQUIBB.—It should be more widely known than it is, that in cases of arsenical poisoning it is by no means necessary to wash the hydrosesquioxide of iron. Any salt of the sesquioxide of iron, whether persulphate or perchloride, may be precipitated in a few minutes by adding ammonia cautiously until it smells of ammonia; the additions of ammonia to be made cautiously and not in great excess, although a slight excess is of no account. Dispensed in that form, the sulphate of ammonia, or chloride of ammonium, are no objection to its administration for the momentary use of an antidote to arsenic. It has been shown that a small amount of sulphate of ammonia is innocuous, and as the arsenical antidote is made for immediate use it saves time, because every pharmacist has some salt of the peroxide of iron on his shelves, in some form, and also ammonia; and in a very few seconds this may be done, and the preparation dispensed immediately. Both the chloride and the sulphate in the stomach have the desirable quality of producing emesis. It is common to give them in a wine-glass to create emesis; when the antidote is thrown up, another portion is given. These salts of sulphate of ammonia, or chloride of ammonium, act exactly in the same direction as the sulphate of copper, which is given to produce emesis. There is nothing objectionable in the solution, provided that the antidote should be had immediately. I think I may say that any pharmacist can make this preparation within thirty seconds after the prescription enters his store, in this way; not if he undertakes to wash it or clean it, but to make it with these salts, even if the double decomposition take place in the glass in which it is to be taken. Let it be made up to any measure, without any hesitation about measures. It is innocuous and does no harm. You may put any quantity into a person's stomach who has taken arsenic, without any harm whatever.

After some discussion, Mr. Milleman presented specimens of the rhizome and root of *Hydrastis Canadensis*, which had been prepared so as to resemble the same organs of *Aristolochia serpentaria*, and was sold by a New York house to a Chicago firm.

The Treasurer read a letter from H. T. Cummings, M. D., of Portland, Me., donating to the Treasury of the Association the sum of ten dollars; he also announced having received for the same purpose the sum of twenty dollars from Sam. M. Colcord; also the offer of several members to send to him voluntary contributions for the same purpose on their return home.

Dr. E. R. Squibb read a volunteer paper on Commercial Jalap, showing the inferiority of many lots of this drug, as it is met with in commerce.

The same member read also a paper entitled, "on Repercolation as applied to the Cinchonas."

It was moved and carried that all volunteer papers read at this session be accepted, and referred to the Executive Committee for publication.

F. W. Colby moved to take up the resolution upon the table, offered by Wm. A. Brewer at the fourth session, in regard to the establishment of a library and cabinet. Several members spoke against the propriety of taking up the resolution during the absence of Mr. Brewer, while Mr. Colby stated that Mr. Brewer had expressed the desire for the Association to act upon the same this afternoon. On taking the question, 8 votes were cast in favor and 13 votes in opposition to Mr. Colby's resolution; so the motion to take the resolution from the table was lost.

The Secretary, having just received a letter from Sam. S. Garrigues, read a portion of it relating to query 24, in which the writer stated his inability of procuring sufficient and reliable data regarding the supply and source of supply of tar during the late war. On motion, the query was dropped.

V. Heydenreich read an essay in answer to Query No. 2, regarding the principle to which the diuretic effect of cubebs is due, &c.

Dr. Squibb.—I should like to ask whether these experiments were pathological or not? whether the persons had any disease of the mucous membrane or not? that modifies the inference. Cubebs are not supposed to be very diuretic upon persons in health, but their peculiar action is upon diseased mucous membranes. The result of the administration of cubebs on a healthy person is no index of their action, because their action is supposed to be on diseased specimens. It is supposed to be diuretic, but it does not even act as a diuretic directly.

MR. PILE.—Some time ago I began writing a paper on the resins of various substances, and upon looking back I found that Prof. Procter had forestalled me. I ceased writing the paper, but shall make a few observations on the oleo-resins prepared by gasoline. I find, with cubebs, the oleo-resin is readily obtained by percolating one pound of fine cubebs with about two pounds of light benzin, of a specific gravity of 86 Beaumé. The resin came through dark colored, afterwards nearly colorless; so it required two pounds of this light benzin to exhaust a pound of cubebs. I got a trifle over five per cent. of oleo-resin by subjecting this percolate to evaporation without any heat. In three or four hours the whole was evaporated down. Here is a sample of the oleo-resin, which resembles the commercial article except the color. That has apparently exhausted some of the brown color of the cubebs, leaving the residue of a pale ash color, not the bright green we usually see in this article. To make the pound, it cost \$2.50, whereas to buy it it would cost and is quoted at \$6.50; apparently the same article, except it is brown instead of green.

A MEMBER inquired whether the experiment was ever tried by percolating cubebs with alcohol in the usual way.

MR. PILE.—I didn't try that in regard to cubebs: with ginger to get oleo-resin, I found a considerable quantity was not taken out by this benzin, but alcohol would take it out. The oleo-resin, I believe, is the same prepared by ether. Ether will not nearly exhaust it. There is a large quantity of resin not soluble in ether, which remains in; the same is true when you exhaust it with benzin, but it seems the same whether with benzin or ether. In making it with ether the cost is enormous; the evaporation is so rapid with ether, that it would bring it up to \$16 or \$20 a pound. With the gasoline you can do it for \$2.50 a pound.

DR. SQUIBB.—In the present state of our knowledge of the solvent property of our hydro-carbons, I regard it unsafe to substitute solvents for oleo-resins. The temptation in the way of cheapness is very strong; in cases of this kind, where the action can be so cheaply done, the temptation is very great. When I read that article in the Journal of Pharmacy, I felt the necessity of some caution in these substitutions. It has been the practice of centuries to establish the medicinal value of cubebs and its preparations; if we take up a new solvent, we shall have to go over the whole of the ground again, and see whether the portion extracted is identical from one solvent with the other. It by no means follows. We may take this specimen extracted by gasoline, and there is no means of proving its identity with that extracted by alcohol. No chemical examination, nothing that we know of, would prove its identity; nothing short of its application in practice, and that to be extended to numerous cases and numerous users of the product. At the same time it is a useful question, and it is useful to find out that the cheaper hydro-carbons will dissolve drugs, but it is unsafe to adopt it in any form short of the investigation which has been necessary to establish the character of the article

so extracted. I feel it necessary to throw out this word of caution, that we be not misled, in searching for substitutes for alcohol, by the cheapness of the process. The physical appearance and the odor to me is different. Perhaps that is because there is always a little odor present, and that, again, may be continually present. Although its color is not the same, and its fluidity is greater than the official oleo-resin I have been in the habit of seeing, it may be exactly the same thing as the alcoholic extract, because the fact that that extracts the green oil does not establish that it is not the same. That is merely a physical appearance.

THE PRESIDENT.—What would be the difference in price, allowing for the alcohol recovered?

DR. SQUIBB.—The mixture of alcohol and ether, which I have always advocated for this purpose, would be very much more easily recovered, and would readily extract the whole resin.

MR. PILE.—This oleo-resin might be applied to recover the oil of cubebs. In that case it would be legitimate to use this oleo-resin after preparing it. It was not to prepare it for medicinal use, and get something out of it, that I was led to make it, but to recover the oil by distillation, which I think could be applied much better than to use the cubebs in the mass.

DR. SQUIBB.—The oils are equally sensitive with the mass, and, with a change in the menstruum, the oil would not be identical.

MR. MAISCH.—Volatile oil of cubebs is a permanent carbohydrogen, $C_{20}H_{16}$, which is not affected by being distilled from an aqueous solution of permanganate of potassa.

DR. SQUIBB.—Mr. Maisch's guarantee certainly goes a great way.

MR. MAISCH.—I have repeatedly made the experiment.

The same author likewise read a paper on the official formula for tincture of Chloride of Iron, in answer to query 17.

DR. SQUIBB.—In regard to the details of this process Mr. Heydenreich is exactly right. That trouble in regard to the reaction, and the details of the process, are not sufficiently attended to in the pharmacopœia, and it arises from the fact that the pharmacopœia committee aim at too great brevity, leaving the details to commentators. If the pharmacopœia would give its processes in a little more detail, even at the risk of prolixity, they would gain much when it comes into the hands of the ordinary pharmacist to apply, and it would be rendered much more acceptable to them. In my practice in regard to the tincture of chloride of iron, I have adopted a little different modification from Mr. Heydenreich. I add nearly the whole of the nitric acid at once, say within two or three drachms for the proportions of the pharmacopœia, to the solution while warm, but not hot enough to cause reaction to take place at once. The vessel in which oxidation is to take place has, about one-fourth of this

mixture put into it, and is heated. The nitrous acid escapes as soon as it becomes hot enough to cause decomposition; then, by dipping in the other, one-fourth or so at a time, the heated portion will cause the other to oxidize rapidly, and, by the time you get the whole into the capsule, all the nitrous acid will have been evolved. It is likely to explode if you do as the pharmacopœia directs; the nitrous acid will go off almost with an explosion, and you will lose your preparation entirely.

MR. HEYDENREICH.—By adding the nitric acid into the dish,—not into the middle, but along the sides,—the fumes all go off gradually, so there is no danger of boiling over.

DR. SQUIBB.—That point is new to me, and, if sanctioned by repeated application, I should regard it as a valuable hint. The danger of loss by this explosion seems to be very accidental; sometimes it occurs, and sometimes it don't. There is no accounting for it. The oxidation is generally done in an immensely large vessel in the water-bath, to avoid this action. This pouring down the edge is a suggestion I am glad to receive.

MR. MARKOE.—I can corroborate Mr. Heydenreich's remarks. I succeeded much better by his method than when following the official process.

MR. HEYDENREICH.—I have tried this method frequently during the last five years, and always with success.

MR. PILE.—I wish to make an observation here, which has proved of value to me. If an operation of this character boils over, and is lost, what are we to do with the remainder?

DR. SQUIBB.—Throw it away.

MR. PILE.—There is nothing said about that in the pharmacopœia, and it is too good to be lost. The pharmacopœia says make up the measure to a pint. If you lose half of the solution, you have the other half left. I have found, in almost every one of my trials, if I make it up to the pint, it is not strong enough; I cannot avoid the loss by the vapors, which takes place on subjecting to heat. I think it is useful to remember that the specific gravity of this solution should be 1.44.

DR. SQUIBB.—Dr. Pile omits to remember that the specific gravity of the finished solution is not a good criterion of the specific gravity after a portion is lost, because that lost is not of the specific gravity of the whole. It is least before the oxidation is completed. The main portion cannot represent the portion lost, because the portion lost is not uniform.

MR. PILE.—The remaining can be oxidized. You can go on adding nitric acid to finish the remaining preparation, and then see that the specific gravity is proper by adding water to it.

DR. SQUIBB.—It can be easily done by a chemical examination. It was a remark of Fresenius, that a man who is not capable of throwing away a spoiled process, and commencing again, had better not commence at all.

MR. MAISCH.—Once in a while it is safe to differ even from Fresenius. If I could utilize that by converting it into some salt of iron, I should do so.

DR. SQUIBB.—That is practically throwing it away, so far as chloride of iron is concerned.

MR. EBERLE.—I constantly make it, probably every two or three weeks, and have never had any trouble in arranging my apparatus so that this boiling over would not be occasioned. If, at the moment effervescence commences the heat is suddenly checked, the effervescence goes on, and can be assisted by nitric acid and more heat if necessary. No boiling over is necessary if the vessel be of a size in excess of the preparation in its quiet state.

MR. PILE.—Perhaps the gentleman knows, when he makes up a pint, how it is of the proper strength.

MR. EBERLE.—I did not know it was necessary to ascertain that, unless we lost some of the preparation.

MR. PILE.—It is, on account of the unequal loss sustained,—the acid not being of sufficient strength.

DR. SQUIBB.—Our muriatic acids of commerce are always contaminated, in my experience, at least those used for such purposes, with sulphuric acid, which increases their density. A muriatic acid of 1.16, placed in contact with iron, will give a sulphurous smell for some time, which is a very good test. Dropping iron into it decomposes the sulphur, and gives a sulphur odor. It is absolute proof that it contains sulphuric acid, and it is almost exceptional in my experience to find muriatic acid not so contaminated; and whenever you meet this smell, it is sure evidence that the hydrochloric acid contains sulphuric acid, and is deficient in strength.

MR. MAISCH.—Does Dr. Squibb mean to say that a mixture of sulphuric and hydrochloric acids with a metal, iron or zinc, for instance, produces sulphuretted hydrogen?

DR. SQUIBB.—Yes, sir.

MR. MAISCH.—That is new to me.

MR. TAYLOR.—The process of the pharmacopœia is often attacked as not making the right strength, when the fault is in the strength of the acids. It cannot be said that the pharmacopœia will produce the right result, if the right materials are not used. When it directs a certain portion of muriatic acid and nitric acid, it means just what it says,—acids of certain strength and certain proportions. If acids of inferior strength are used, you cannot get the right results. That formula will produce the result, if the right acids are used.

The Executive Committee presented the names of the follow-

ing gentlemen for membership, they having complied with the requirements of the Constitution :

John Hooker, Springfield, Mass.	Thomas L. Johnson, Cooperstown,
Geo. W. Bird, Brookline, "	N. Y.
Geo. A. Copeland, Providence, R. I.	Edwin McC. Boring, Philadelphia,
Gottfried Hebbeling, N. Y. City.	Pa.
E. Fougere, " "	Jos. L. Shoemaker, Philadelphia, Pa.
C. F. Chandler, Ph. D., " "	J. A. Meyers, Columbia, Pa.
W. H. Whitney, " "	Alex. Bain Petrie, Guelph, Canada
Wm. R. Schanck, Jersey City, N. J.	West.

On motion, a ballot was ordered, when the Chair appointed Geo. C. Close, of Brooklyn, and Theobald Frohwein, of New York, tellers, who reported the unanimous election of the candidates.

G. F. H. Markoe read an essay by Wm. Saunders, of London, C. W., in answer to query No. 6, regarding the officinal formula for compound decoction of Sarsaparilla. The paper was accompanied by various specimens of the decoction, prepared according to the critical experiments.

Query 35, on Ferri et Potassæ Tartras, was, on motion, continued to J. F. Babcock, of Boston; after which G. F. H. Markoe read a paper by the same member, in answer to query No. 44, on Bees-wax, the bleaching of and the substitutes for the same.

DR. PILE.—Charles Shivers filters all his wax through paper. It has a very handsome appearance, and was done at the temperature of the water-bath.

MR. MAYER.—In regard to the bleaching of wax, the use of chloride of lime is abolished now-a-days, if it was ever used. In bleaching wax, the addition of acids must be prevented as much as possible; although it is stated that acids are used in the bleaching of wax, it is very doubtful. The sun has sufficient influence; the presence of acids always injures the preparation.

C. Lewis Diehl read a paper in answer to query 9, on Syrupus Senegæ, and showed numerous specimens of this preparation, made according to the methods treated of.

MR. DIEHL.—I will say that I am in favor of making syrups from fluid extracts in the case of compound syrup of squills, because the syrup, as at present made, does not keep well.

The same author likewise read an essay in answer to query No. 20, on Colchicin, its isolation and properties, in which the alkalinity of this principle is denied. The paper was accompanied by a handsome specimen of the principle, of a light yellow color, obtained from the seeds.

On motion, the Association adjourned until to-morrow morning, at 9 o'clock.

Sixth Session.—Friday Morning, September 13th.

The meeting was called to order by President J. Milhan. The minutes of the 4th and 5th Sessions were read and approved.

The Executive Committee reported the names of the following candidates for membership:—

Ernest Molwitz, New York City.

Geo. G. Sands, “

E. T. Meyers, Bethlehem, Pa.

W. H. C. Onderdonk, N. Y. City.

Adolph Kirsten, Jersey City, N. J.

The Chair appointed Messrs. Neergaard and Shedden, Tellers, who reported the unanimous election of the candidates.

The Business Committee laid before the meeting several letters from Mr. J. L. Hunnewell, of Boston, in reference to his expulsion from this Association, in 1862 (see Proceedings for 1862, page 40), and asking to be re-instated; whereupon the Business Committee moved that the case of Mr. J. L. Hunnewell be reopened, which motion was seconded by the Secretary. During the discussion following several extracts were read from circulars recently issued by Mr. Hunnewell, wherein, in very peculiar language, he advertises and recommends several nostrums.

DR. SQUIBB.—The Business Committee beg to invite the attention of the Association for one moment to a very disagreeable subject, which has been placed in the hands of the Business Committee, and which that Committee, in justice to itself, but not at all to the person making the claims, feels necessary to bring before the Association. It may be remembered that some few years ago a person by the name of J. L. Hunnewell, of Boston, was expelled from the Association for using the diploma of the Association as an advertising trade mark. The action was brought up in the Association, was well considered, well discussed, and finally acted upon, and the member was expelled. Previous to the present session, the Chairman of the Business Committee received the following letter:—

" *Boston, June 12th, 1867.*

" E. R. SQUIBB, Esq., 56 Doughty Street, Brooklyn, N. Y.

" *My dear Sir,*—I am about to write you on a matter where personal interest is at stake, asking your most free answer, and as circumstances will permit. In 1860 I was elected a member of the American Pharmaceutical Association, was then, as now, engaged in a branch of our drug laboratory in what are termed Proprietary Medicines. From such which were then in proprietary form has radiated what are given on the enclosed list, and now most generally used in medical practice, and all in said list are sold only in bulk and regular dispensary form. While I was selling in the proprietary form, I was getting up a nice form of circular, and my eye caught the pedestal of vignette of diploma, and without thinking or knowing I was committing the *least* indiscretion, used it merely as illustration. I was elected in September, 1860, and this plate was used in the winter of '60 and '61. The circulars were struck off and distributed that winter. In the spring of 1861 I was in New York, and called at Milban's store, and there, for the *very first* and *only* time, was my attention called to it. I said to him at once if I had committed an error, I was sorry, and would at once cause every plate to be destroyed. I came to Boston and destroyed what cost me over \$90, and from that day to this have never sent one of the kind. Of course some were still out, and I could not well get at them, but that was the sole and only cause why I was expelled, and was so in 1862. More than a year after everything so far as possible for me to do was done. Had I thought for a moment that what I had done would not be overlooked, I should have attended that meeting, and shown that I had corrected the error, or employed some friend to plead my cause. This point can be clearly proved, and even under the feelings of disappointment at the expulsion, have always been in the most free fellowship with all Boston pharmacæutists; have never allowed anything done derogatory to the name and title of pharmacæutist, or in any way cause anything to be done only what was in taste with medical practice. Now, then, my wishes are two-fold, namely, I would like to be re-instated as a member, and, although am at present engaged in what would be termed a *one-idea* form of medicine, and a part still in proprietary form, but doing only and what shall allow all to rank among such as are standard, and not in the least to detract from my fame as a pharmacæutist, or my interest in progressive medicine. If by such there is no impediment, I can give names of all or such in Boston as will show my true character and my task in Pharmacy, and produce an undeniable testimonial from leading Boston members. If by such am not what is constituted a member, would ask that at the next meeting the matter be called up, and the matter of expulsion be given in a form that would simply give the reasons, and not detract from my character as a pharmacæutist. By advice of Mr. Colcord, Mr. Boyden and others, I write this, who would gladly second any step you might advise;

and I trust that, if re-elected, you will find in me not only a consistent and working member, but one who would do or allow nothing done derogatory to the real character and objects of the American Pharmaceutical Association. To Mr. Maisch I am not personally known; with Mr. Stearns have had some dealings, and should be glad to have you lay or place this where they can see it, if you think proper, and should be glad of your own advice, as the Chairman of the Business Committee, of my position, and whatever may be needed to answer either of my points.

"Yours respectfully,

"JOHN L. HUNNEWELL.

"P. S.—Since writing the foregoing, I have looked up a circular I used in a very limited form some five or six years ago, to show you the pedestal alluded to, and my object was to insert the names of the articles in the bands *around* the pedestal, which you will notice. The member or members who advocated my expulsion must have taken pains to have kept them more than a year, and more than a year after I destroyed the plates and the paper at my store. They are not used now, and I find this among some old papers. The list of formulas are the ones now used."

To this letter the following answer was sent:—

"*Brooklyn, July 19, 1867.*

"MR. JOHN L. HUNNEWELL, Boston, Mass.

"*Dear Sir,*—Your letter, dated June 12, 1867, came to hand only day before yesterday.

"I have neither the time nor inclination to answer your letter frankly, as you request, for it would take much time, and I should have to say much that would be disagreeable to me.

"If you desire it, I will place your letter and circulars before the Association, and ask for a special Committee to consider your case; but must say at the same time that, from the character of your circulars and other advertisements which I have seen from time to time, particularly those in which your Tola Anodyne is recommended to popular use as a substitute for alcoholic drinks, that I shall oppose your being re-instated, and even oppose the Association's taking up your case. Some one in the Association—I don't now remember who—has a set of your advertisements, and in my judgment it would be unwise for you to call them out for public discussion, with a phonographic reporter to publish the discussion which would possibly occur.

"Very respectfully,

"E. R. SQUIBB."

To this the reply is:—

"*Boston, July 22, 1867.*

"E. R. SQUIBB, M. D., 56 Doughty Street, Brooklyn, N. Y.

"*My dear Sir,*—In answer to your friendly note of the 19th, I would simply say it is just what I would like, to have the whole subject again opened, fairly looked at, my position and my actions most thoroughly

scanned, and with what I feel perfectly able to do, think I can show that *expulsion* can be *expunged*, or at least modified to the expression that my present position prevents the right to membership. For my standing and character, for my full respect in defence of the regular practice, for the fact that I have not only not interfered with it in any way, but been ready to do only what a perfect respect for any honorable profession would suggest, can show the most undoubted evidence. I must acknowledge I cannot fathom your remarks about advertisements in which the Tolu Anodyne is declared a substitute for alcoholic drinks. It is what I have never allowed. In advertisements, I have simply referred to facts, have avoided *all* such, as far as testimonials are concerned, well knowing how many are purely fabulous, excepting in a single case or two, but for the past year have dropped everything in the newspapers, have not made a contract for six months, and do not intend to for the future, but closing and stopping all, and relying upon a very simple calendar form. For a dignified notoriety, I claim a perfect right, and as such shall sustain my position and my enterprise. In what you say about alcoholic drinks, I have said, and now repeat it, from the evidence of more than one unfortunate case, that the Tolu Anodyne has been effectual in painful menstruation, is very freely used by those with whom I enjoy the name of father, and a comfort to the mother, whose dread of a taste for liquors was perfectly natural and Christian-like, and if such declarations are to be my condemnation, which humanity forbids, then surely am I unfit for a membership in the American Pharmaceutical Association. This must not be, and I am sure I can show you it should not be. I have always defended the Association and physicians in declaring against the thousand and one worthless nostrums thrown to the public, and I beg that the point of true character should not be whittled to so small a point. If so, we should have to say to nine-tenths of regular M. D.'s and pharmacutists, 'Stand from under.' I do trust that *true* eclecticism, when it is the real ground of progress, may not be buried in creeds, to completely disrobe progress of its true motive power.

"Yours, very truly,

"J. L. HUNNEWELL."

I don't know that I can say more, as a member of this Association, for these letters than to contrast the well-written—sensibly written letters—with a single paragraph of the circulars which are given to the public—the one giving evidence of a man of good sense and good ordinary education, the other giving evidence of the greatest amount of foolishness and nonsense. He says:—

"By the application of reason to mathematical laws of the *Materia Medica*, the claim of expecting a perfect uniformity is based on sound reasoning only.

"As it must be acknowledged that a certain portion of patients must be supplied by the agency of medicine in proprietary form, it is but justice

to the physician to make him acquainted with all the facts, that when he is brought in contact with them, or his patients desirous to use them, his recognition will strengthen their confidence, and allow him to say from knowledge what his advice is.

"I claim, by the freedom with which I court investigation, by my readiness to answer *all* inquiries, and to send *every* evidence in the shape of *trial bottles* and *formulas*, that the physician may, with propriety, include these preparations among those he is willing to recognize, against the mass of nostrums thrown upon the world, wrapt in secrecy, the best evidence of worthlessness, and by those who have no acquaintance with the laws or adaptation of medicine to disease.

"Under the study of *Anatomy of Medicine*, by which many new and important developments have been made, equally important to both the *physician* and his results in the treatment of disease, simple forms suggest themselves, by which the study is clearly proved.

"The following important preparations claim attention, that their theories and results may go hand in hand, and the law of simples stand among the potent laws of cure."

He then goes on to say:—

"The Universal Cough Remedy, which rests entirely on the *Sanguinaria globularis* by absorption, leaving the *Canadensis* as an astringent entirely out of the question.

"In order to introduce Squills, to get clear of their expectorant property, and allow the greatest freedom of use, I have added *one grain only* of Opium to each large-sized bottle of eight ounces. By this process I make an alterative of the Squills, retaining its real sedative principle for coughs and acting as mordant for the *Sanguinaria*. Liquorice, Rhubarb and Cubebs are used as vehicles to assist the *Sanguinaria*. Therefore the perfect impunity with which the Cough Remedy may be used, without coming in contact with the usual components of opiate or expectorant character, not only ask your confidence to accept, but to test the theory of how perfectly this development of the *Sanguinaria* adapts itself to throat irritations or diseased lungs."

I maintain that it is an insult, not only to the medical and pharmaceutical professions, but to the public at large, to address such language to an intelligent community or man, and my main ground in now opposing the opening of this question at all is, that a man who commits such a mistake as he committed when first expelled, is not safe to be trusted, lest he commit other mistakes just as bad hereafter.

THE PRESIDENT.—Does he continue to make that valuable preparation?

DR. SQUIBB.—That is still continued. The other circular is perhaps still worse:—

"SPECIAL NOTICE TO PHYSICIANS.

"So important has the *cathartic development of the pill aloins cum*

ferro, known as the (so-called) *Eclectic Pills*, proved; and the size of the pill by our machines ($1\frac{1}{2}$ grains each) so perfectly adapted to the wants of every physician and patient."

And so on. It is a perfect jumble of words. I maintain, here, that the internal evidence of these papers is such that it is intended to mislead the pharmacist and the public at large. I oppose the opening of this subject, although I make a motion to that effect. I am bound to move that this subject be re-opened, and discussion invited; at the same time I oppose the re-opening of the subject or any discussion. I have done all that my duty and the Business Committee call upon me to do, and if the Association choose not to second the motion, I cannot help it. There is a certain fairness due to the Association, not to the man, and that is what has influenced me in bringing this matter here at all.

MR. MAISCH.—The Business Committee has made a motion to open the question again. I second that motion simply for the purpose of bringing it before the Association, but I declare, the same as the Chairman of the Business Committee, that I shall vote against it, and would like to have as little discussion about the matter as possible. I believe that it is better that another vote be taken by the Association on this subject, so as to declare the sense of the Association still more strongly than was done heretofore. If the Chairman of the Business Committee will examine that plate, he will find that even that was intended to mislead, since the title of the Association was not used. Everything was used except a slight change in the title. It was evidently intended to mislead. With these few remarks, I am ready for the question.

MR. TAYLOR.—I think it would be well to bring the subject up, and have it, on motion, laid on the table.

DR. SQUIBB.—Lay it on the table, and it may be called up in future, unless you go through every form of asking a reconsideration. I think to put it to a vote, and let the Association open the subject, if they please, by a unanimous or partial vote, or let them take the opposite course, if they please, would be the fairest way.

The question being called for, the motion to re-open the case received not a single affirmative vote, all the members present voting in the negative. The motion was therefore declared lost by an unanimous vote.

The subject of selecting a place for holding the next annual meeting was laid before the Association, when a letter was read from Mr. Rob. J. Brown, inviting the Association to hold its next annual meeting in the city of Leavenworth, Kansas, in consideration of the easy access to that central portion of the United States, its close proximity to the plains, and in view of the opportunity of enjoying the exciting sport of a buffalo hunt.

DR. SQUIBB.—There has been some mention made in late years of a session in St. Louis. It was deferred in consequence—last year—of the unsettled condition of the State, and the city of St. Louis, and as we have no invitation from there, I take it for granted the same condition exists there still, which militates against our going there. I would not wait for an invitation to go to a city. If we consider St. Louis would be the most valuable place, I should think we were sufficiently independent now of invitations to go, even though not invited. I merely throw this hint out. It is competent for any member to move for any particular place of meeting.

MR. TUFTS.—Mr. Sargent intimated that next year they were very desirous to have the Association meet in Chicago. I mean year after next—two years from now.

MR. TAYLOR.—I hope the Association will go to Philadelphia. We shall give them a cordial welcome.

It was moved, by Dr. Squibb, that when we adjourn we adjourn to meet in Philadelphia, on the second Tuesday in September, 1868, which motion was unanimously carried.

Mr. A. B. Taylor was nominated for Local Secretary; the Chair appointed Messrs. Theo. Frohwein and G. Krehbiel Tellers, who reported his unanimous election.

The Business Committee presented the following:

“Whereas, It is recognized as a prominent means by which this Association hopes to increase its public usefulness as a national Association, to urge upon our legislators the importance of a judicious, but certain, determined, and, as far as practicable, uniform control of the practice of pharmacy in the various States; therefore,

“Resolved, That the President and Executive Committee of the Association be authorized and instructed to offer any service which the Association can render to the various conventions for reforming State Constitutions, and to State Legislatures as opportunity may arise, wherein such bodies may consider the coöperation of the Association either desirable or useful.”

DR. SQUIBB.—This preamble and resolution are called for by a letter received by our President from the present Convention, reforming the State Constitution of this State, asking for his co-operation in attempting to control the practice of Pharmacy in this State by Constitutional provision, and he has deemed it well worth while to have some expression by this Association of its willingness to co-operate through its permanent officers with this organization. It seems so plain, I don't think it is worth while to expend any time in discussing it.

MR. MAISCH.—I second the resolution, and would suggest to the Chairman of the Business Committee to alter the wording in one respect, and

substitute for "the President," "the officers of the Association,"—the officers and the Executive Committee.

DR. SQUIBB.—That may be put as an amendment. My object, first, was to have the President alone; but the Executive Committee with the President, being the parties who convey us from one year to the other, and the Executive Committee being the Executive of the Association with the President, I have included them also; it seems desirable to contract it as much as possible, rather than open it as wide as possible. I think the "officers" might embrace the Chairmen of all these Committees.

MR. MAISCH read from the Constitution the clause which provides who shall constitute the officers of the Association, and said:

These other officers—Vice-Presidents—reside in various portions of the country, and by having them on this Committee they would be proper representatives of the Association in conferring with the Legislatures of their own States. That was my object. Our President, residing in New York, would have comparatively little or no influence to address, for instance, the State of Kansas on this subject; while if our First Vice-President is put on the same Committee, he will be the representative of the Association in that section, and for that State.

DR. SQUIBB.—It is not intended to be a Committee, in the first place. In the next place, the Secretary forgets that the Vice-Presidents are not legalized officers until the President is absent. They are to take his place in case of any incompetency on his part. I have no particular objection to include the officers, but I think it renders the thing less defined and less practical. I have no objection to introduce it, if it is desirable.

MR. MAISCH.—I make a motion to that effect.

THE PRESIDENT.—I think it will give more scope to the gentlemen.

DR. SQUIBB.—We want to confine the scope: if possible, that the President alone should be the man; but as the Executive Committee of the Association is the executive organization of the Society, I thought it better to add them.

THE PRESIDENT.—It might carry with it more force to outsiders. I want all the members of this Association to take an interest in it; if all the officers will take a practical interest, so much the better. I would not object to that myself.

DR. SQUIBB.—I have no strenuous objection, but I believe, on further consideration, I would not like to see a Committee appointed. We want to individualize the thing, so that these people may have some one individual. The main objection to that Committee would be that any member of a Convention desiring to have the coöperation of this Association would at once address the President. He would not think of addressing the Executive Committee, but the President would call the Executive

Committee as his counsel in the affair,—and that is the reason for the insertion of the Executive Committee. He might, to be sure, call the Vice-Presidents, but they would be very much scattered, and it would be difficult to get the organization to work as well.

MR. BROWN.—It is not a question confined merely to the City or State of New York. I think it would be better to have one man in every state on this Committee, and then, when there are any constitutional changes to be made, or any legislative enactments, they would be there to represent the Association, and to use their influence to extend it throughout the country. I don't think the thing ought to be confined; I think it ought to be done in every state by members in that state.

DR. SQUIBB.—I will accept Mr. Maisch's amendment. I am opposed to Mr. Brown's amendment, because we could not find in every state a man I should be willing to trust with that duty. I don't mean to say we should not have some one in every state to call on, but everybody should call on the President, and at our next meeting nobody would hesitate to endorse anything he might do. So with our Vice-Presidents; and the only object I had in leaving them out was to confine the thing as far as possible, when the original resolution was drawn. It will now read:

Resolved, That the President and other officers of the Association be authorized and instructed to offer any services which the Association can render to the various conventions for reforming State Constitutions, and to State Legislatures as opportunity may arise, wherein such bodies may consider the coöperation of the Association either desirable or useful.

MR. COLCORD.—Why not have a special Committee?

DR. SQUIBB.—A special Committee is not the recognized head of the Association. I would give the President authority to appoint any Committee he chooses for the purpose. I think he can do that, independent of a resolution of that kind.

The resolution, as amended, was carried.

THE PRESIDENT.—I am sorry to be obliged to trouble the members with a question relating to myself. I believe a sick man should not sit at a festive board,—not on account of himself, but on account of those whom he wishes to entertain. It might mar the pleasure of the occasion. I am afraid I shall be obliged to call upon my friend Dr. Squibb on occasions that will afford him not only no pleasure, but will cause him a great deal of work. I think I am bound to offer him some compensation in taking my place. He there will have nothing but play. I know the members will be perfectly safe in his hands. I regret very much that I shall be unable to be with you, for otherwise I should have enjoyed your society, and I hope you will be able to enjoy it. I will be with you in thought, and hope that next year, by taking better care of myself, I will be able to meet you in Philadelphia with renewed health.

DR. SQUIBB.—I am sure, if the Association is as willing as I am to relieve the President, we need not take up any time in discussing this matter. He deserves our best consideration, and shall have my assistance in anything I can do.

The reports on scientific queries being called for, it was found that no reports had been received in answer to the following queries, propounded last year: Nos. 10 (turpentine trade), 11 (deterioration of volatile oils), 12 (preservation of lemon juice), 27 (precipitate in tincture and vinegar of sanguinaria), 31 (loss of astringency of liquid preparations of kino, &c.), 33 (complete removal of cinchotannic acid from liquid preparations of cinchona), 34 (physical exercise of the pharmacist), 38 (difference of properties of leaves of hyoscyamus and belladonna raised in the United States and Europe), 39 (impurities in commercial valerianate of ammonia, and process for pure valerianic acid), 42 (home preparation of lactucarium), 43 (*Scutellaria lateriflora*), and 46 (coating of pills with sugar, &c.)

No. 13. *Oleum theobromæ*, &c. H. W. Lincoln, of Boston, read a lengthy essay on this subject, and exhibited a large number of specimens, consisting of the fruit, pure and adulterated cacao butter, chocolate of various kinds and qualities, &c.

In the place of an answer to query 21, "on the seeds of *Ricinus communis*," Prof. Wadgymar, of St. Louis, offered a paper "on hyoscyamia," in answer to query 27 of 1865, which had not been reported on last year, owing to the bad health of the author. Prof. Bedford read this paper, which was accepted, and referred for publication.

Query 22, on the physiological properties of the leaves of *Ricinus communis*, was, at his request, continued to F. V. Heydenreich, of Brooklyn, the experiments not having been pushed sufficiently far to make a satisfactory report.

Query 26, on the deposit in wine of ipecac, was, for a similar reason, continued to G. F. H. Markoe, of Boston.

Query 45, on the best form of apparatus for preparing pills of uniform size, &c. An essay was read in answer thereto by Ferris Bringham, of Wilmington, Del. In connection with this subject, the author called the attention of the Association to a pill machine placed on exhibition by Mr. A. H. Wirz, of Phila-

delphia. The machine is fastened in a solid iron frame-work, to prevent it from warping.

MR. BRINGHURST.—My attention has been called to a pill machine patented August, 1867, by Mr. Wirz, of Philadelphia. I suppose the patent consists in the solid casing of chilled iron, and that prevents the machine from warping. This case is one solid piece of chilled iron. The advantage of having steel or iron, making less friction, is well established; in fact, it has been so long in use that the old-fashioned machine, with the rollers on the sides, I don't regard as of any account.

DR. PILE.—To prevent that slipping, I have made cuts in the whole length of the slide, so as to make the edges like saw teeth. That prevents the slipping.

MR. BRINGHURST.—Liquorice root does not slip so much. On this account I have had a great deal of satisfaction in using a little pill-roller, a cut of which is in Parrish's Pharmacy, and which he makes for sale. Wood holds on better than metal. These little pill-rollers come in play, notwithstanding we can use the back of the cutter.

The same member spoke about the use of a ready counterpoise on the shop scales; a simple tin box with a sufficient quantity of shot has been found best for this purpose.

The same member exhibited a bottle for keeping volatile oils; the bottle is encased in tin, projecting just above the shoulder, and is wrapped in some filtering paper to absorb spent drops of oil and to secure the bottle in the case.

A tinned copper funnel with a moveable wire frame-work for receiving the filter was also exhibited by the member; the contrivance is designed to replace to a certain extent the glass funnels, which are so liable to be broken by careless operators.

MR. BRINGHURST.—I have always found a difficulty in getting good shaped glass funnels, and when you do get them, the boys are apt to break them. For filtering tinctures, cologne, elixirs, and for many other purposes, I have used a tinned copper funnel, which does not rust, and answers every purpose where the liquid does not contain acid. I have a wire framework to set inside, and the funnels large enough for No. 40 to 45 of the French filters. By having the wires close together, the filter is kept off the funnel, and filtration is carried on much more rapidly. We use a brush, and it is easily cleaned and kept in order. There are no patents on these things; anybody that wants to use them can get a tinman to make them. In filtering elixirs, you will find it will not run very fast without the wire, which keeps the filter off. It is better, in my experience, than the fluted funnel.

MR. COLCORD.—It is easy to fold these filters too fine, so that they obstruct more than they help.

MR. EBERLE.—One of the advantages is in keeping the filter out of the neck of the funnel. It prevents what might be called back water.

MR. COLCORD.—I was thinking of a wire arrangement made like that, that the boys in the store would not keep them sufficiently clean. If you are filtering gummy substances, and then use them for filtering other things, there will be a difficulty in keeping them clean.

DR. PILE.—Some experiments have been made to show that the closer the paper laid the better, and where the paper was three thicknesses on one side, it filtered more rapidly than when one thickness. A writer says it is better to have four thicknesses all around. In that case it filters much faster than in the other case. These experiments are recorded by some English writer, I believe, in a late journal. I suppose it may be so in some cases, that the filter works better.

DR. SQUIBB.—That is a suggestion made by me, in a paper lately published. It is intended for percolation,—to obstruct too rapid percolation. That has its advantages for percolation where it is intended to be very slow, but not for filtration where it is intended to be very fast. Little attention need be paid to the folding of the filter when using this wire, which takes the place of the fluting.

MR. BRINGHURST.—I use a fluted filter. It affords a large surface. If you have three thicknesses on one side, and one on the other, you only have half the surface. I don't see the philosophy of filtering through three thicknesses faster than through one.

DR. SQUIBB.—The explanation of it is that liquid that has passed through one thickness will have no obstruction in passing through others. If it is well calculated to filter through paper, having passed through one sheet of that paper will have deprived it of all its obstructions to passing through the others, and it will pass through as many others as you put before it with great facility; but the whole thing depends upon the character of the liquid filtered, and if that be of a syrupy nature, every single thickness of paper will obstruct it more and more, and whether you have these thicknesses spread all on one side, makes a great difference.

MR. COLCORD.—Where the filter is fluted, and when the paper lays close, how much slower does that filter than when folded fine and folded in that wise?

DR. SQUIBB.—The filtering is extremely slow under those circumstances. When it is flat against the surface of the funnel, the more pressure you put on it the tighter it packs against the sides and the less opportunity for it to get down through the thickness of the paper.

MR. BRINGHURST.—The Dutch filter—three on one side and one on the other—is adapted to the collection of precipitates, but for rapidity the

French is best. There is another thing in the mechanical operation that is overlooked; and that is the importance of wetting the filter. If you use the filter dry, the pores of the filter will become closed by reason of the expansion by wetting, and the penetration of the sediment into the pores will obstruct the filtration. If you wet them first, to allow that closing up, then the muddy particles collect on the end of the fibres of the paper and stand out and let the filtration go on just as well.

Dr. SQUIBB.—There is another idea—that when a magma or a solution containing insoluble particles are filtered, the first effect of the filter is to absorb a portion of the liquid, and that attracts a portion of it into the interstices of the paper and renders it impenetrable.

Mr. COLCORD.—I would like to see somebody accept the question of filtration and let us have a paper on it.

Mr. MARKOE.—Here is a modification I call the Yankee filter. In the ordinary method of folding a plated filter the creases are made to converge at one point, and it tends to weaken the filter. This works more accurately—it does not fill up the point of the funnel so much. By putting on a little cap filter with a small piece of muslin, you can load it as much as you please without breaking. I very rarely or never break a filter when I take this precaution.

Mr. BRINGHURST.—When there is any acid in the liquid liable to tender the paper, I always use a cap.

Dr. SQUIBB.—If you use a number 80 filter without a cap, you are sure to lose your filter and the substance too.

Mr. MAISCHE.—There is one point in filtration that deserves attention, that I think is very frequently overlooked. I have been often provoked by my boys using filters in such a way, and by seeing them used thus in other places, namely, to allow it to project above the funnel. If that is done, the liquid will be absorbed by capillary attraction, and continued evaporation will go on from the ends of the filter. If the liquid is volatile, the evaporation takes place very rapidly. If the point is to obtain the whole of the liquid, as for instance in the filtration of a tincture, a great portion of the medicinal substance is lost by that very fact, the tincture being drawn up and the alcohol evaporating, and you will find a considerable portion of the extract at the upper end of the filter. If the filter is cut down a little below the top of the funnel, this is avoided.

Mr. EBERLE.—In filtration, the filters should be covered. I was at a place where they had a great deal of trouble in the filtration of tincture of colombo. It became quite muddy, and there was quite a sediment occasioned by the loss of alcohol.

Dr. SQUIBB.—The suggestion made by Grey, of using oil silk or gum cloth which fits in the funnel, is a very good one and saves much alcohol.

Mr. COLCORD.—We always use this rubber cloth.

Dr. SQUIBB.—An ordinary breakfast plate makes a very good cover in its ordinary position, with the India-rubber cloth under it, it is very much better.

Mr. COLCORD.—In a large sheet of rubber the weight of the rubber keeps it down.

Dr. SQUIBB.—This thin India-rubber is the best. It is better to have it touch the liquid. It often happens the funnel will get nearly empty as it goes down, and then it will go slower and slower. As this cover of India-rubber goes down you can pour water on it and hasten the filtration of the portion at the bottom by filling water on top of the India-rubber cloth. The cloth prevents the water from touching the filtering liquid.

Mr. EBERLE.—How does the air get above the surface of the filtering liquid?

Dr. SQUIBB.—It don't hug close enough for that. If the india rubber follows the menstruum down it does not need air—the pressure is on the top of the cloth.

The Executive Committee proposed Edward H. Heinitsh, Columbia, South Carolina, as a suitable candidate for membership, the applicant having complied with all the requirements of the constitution. The chair appointed Henry Haviland and Theo. Frohwein as tellers, who reported the unanimous election of the candidate.

The Business Committee presented the following communication from the East River Medical Association.

“EAST RIVER MEDICAL ASSOCIATION OF THE CITY OF NEW YORK,
New York, September 10th, 1867.

“DEAR SIR :—

In compliance with a resolution adopted by the Association, at their last regular stated meeting, (Sept. 3d), I hereby enclose, for the consideration of your honorable body, the following resolutions, which were adopted some months before :

“Whereas, The attention of this Society has been called to consider the propriety of taking action relative to the practice of druggists renewing the prescriptions of physicians without their written order, thereby injuring very materially the interests of the profession ; and

“Whereas, In view of the graver and more important consideration that the interests and lives of patients are, in consequence, endangered, we consider it a duty to guard to the utmost of our ability against the liability to mistakes which should be prevented rather than deplored ; be it therefore

“Resolved, That we cordially invite the earnest coöperation of every

druggist in this city, especially in our immediate districts, to further this laudable purpose; and be it further

“*Resolved*, That we respectfully request that no druggist will renew the prescriptions of any physician without due authority for each and every such renewal. Further, we will regard as unworthy of our patronage any druggist who fails to comply with the requirements of these resolutions.

“In this connection, I may add that these resolutions are submitted in no dictatorial or captious spirit, but for the purpose of interchanging views with a body representing a kindred profession, equally anxious with ourselves to maintain uninterruptedly the existing harmonious relations.

I remain, yours respectfully,

JOHN SHRADY, M. D.,
Secretary, etc.

P. W. BEDFORD, Esq.,
Local Secretary Am. Pharm. Asso.

Mr. COLCORD.—I suppose if we should discuss these resolutions there would be no end to it. I move that this communication be received, and the Secretary be instructed to reply that it has been received, and it is the sense of the Association that a physicians' prescription belongs either to the apothecary or to the patient, and not to the physician.

Dr. SQUIBB.—I should be sorry to see any expression of opinion at all on this subject. I do not agree at all with Mr. Colcord in his suggestion; as he says it would raise discussion, on his part and mine. I think, therefore, that for that communication to go on record, and for us to draw up a reply to it, acknowledging its receipt and replying to it in the same courteous spirit in which it is tendered to us, will be all that is necessary and all that I think is judicious.

Mr. Colcord withdrew his motion, when Dr. Squibb read the following preamble and resolution:

“*Whereas*, An acceptable communication has been received from the E. R. Med. Association, as follows: (see above), therefore

“*Resolved*, That the Secretary of the Association be directed to acknowledge the receipt of this communication, and assure the E. R. Med. Association that the spirit and tone are acceptable and gratifying, and that this organization will always be glad to increase its chances for usefulness by any judicious co-operation with the medical profession, whose true interest are identical with its own.

Mr. COLCORD.—That endorses these resolutions.

Dr. SQUIBB.—I think if Mr. Colcord calls that an endorsement, I am unable to draw a resolution. I studiously avoided any endorsement.

Mr. MAISCH.—Dr. Squibb terms them “acceptable resolutions.”

Dr. SQUIBB.—If it is not acceptable to Mr. Coleord, it is to me, and now the question is whether it is acceptable to the Association. I say "an acceptable communication." I will withdraw the whole matter as chairman of the Business Committee.

Mr. MAISCH.—Is not that letter addressed to the Association?

Dr. SQUIBB.—It is directed to Mr. Bedford, but it has been brought up by the Business Committee, and the Business Committee will withdraw it, because it seems to create discussion. It is offered in a good tone.

Mr. COLCORD.—Read the resolutions again. (Read by Dr. Squibb.)

Dr. SQUIBB.—You must offer them the indignity of not receiving their communication.

Mr. MAISCH.—Ordinary courtesy demands that we should take notice of it. I am willing to receive the communication. I am only sorry it was not laid before the Association at a former session, so that the points involved might have been discussed. Personally I am opposed to the resolutions of the East River Med. Association.

Mr. TUFTS.—Why not receive it and postpone action upon it until the next session?

Dr. SQUIBB.—I move that it be postponed as unfinished business, if it is going to make discussion. I would not have any discussion at all.

Mr. TUFTS.—I move that this communication be received, and that on account of the lateness of the hour, it be postponed as unfinished business, to be taken up at the next meeting of this Association.

The resolution of Mr. Tufts, to postpone, was carried.

G. F. H. Markoe, exhibited a model of a powdering mill, of modern construction, and made the following remarks:

Mr. MARKOE.—That is a model of a large mill used by Storer & Whelpley, of Boston, for pulverizing copper-ore. The principle of it is entirely different from ordinary mills. The material properly cracked is allowed to go into a hopper, and a rapid motion is given to the arms usually by power; the comminution of the material is effected by a series of light blows. They claim that the principal power is the attrition of the substance among its own particles. Large mills are used for pulverizing quartz, and they claim that they can pulverize ten to twenty tons of the hardest quartz ore per hour. These large ones are driven by engines; they propose to build small ones that can be worked by one or two men. I am not able to say what the cost is, but they intend to make them as low as possible. It remains to be proved whether they are adapted to powdering drugs. They powder bones and minerals, and I should think they would be applicable to the powdering of a good many drugs. They have two mills, one in which they break and prepare the mineral in the form of coarse gravel, and in that condition, it is transferred to these pulverizers

and reduced to the condition of flour. The very rapid motion given to it creates a very strong current of air, and the fine powder, as fast as it is produced, is blown out in the shape of flour. It works finely for reducing ores to powder, and they also powder many thousand tons of coal. They are now using coal in the form of powder, and in that condition they use it in their water furnaces.

Mr. BRINGHURST.—I should think it would be better for quartz than tough roots.

Mr. MARKOE.—They powder bone.

Mr. BRINGHURST.—Have you seen them in operation?

Mr. MARKOE.—I know they are in operation, but I have not seen the large size. They powder all the fuel used at the East Boston Water Furnaces, and all the copper ore that they reduce.

Mr. COLCORD.—I saw those mills in operation. That small mill, as I understand it, will powder so fine, that a lump of coal of the size of a goose egg, when powdered, would say would fill a quart. It will powder finer than any powdered gypsum I ever saw. I think Mr. Markoe has made a mistake in confounding the operation of this small mill with the large mill, that powders this large quantity.

Mr. MARKOE.—I beg to correct Mr. Colcord. They cannot use these pulverizers until after the material has been crushed by another mill that reduces the ore to the condition of gravel. I only spoke of those that produce such an immense amount of work, as very large, and working upon the same principle.

Mr. COLCORD.—That is where I think you made the mistake.

Mr. Markoe exhibited and explained a diagram, and said:

There is one in New York that has the capacity of reducing twenty tons of ore to the condition of flour per hour. The principle is to give a very rapid motion to the paddles, amounting to several thousand revolutions per minute.

Mr. MAISCH.—Is the theory to disintegrate by the rapidity of the motion?

Mr. MARKOE.—Yes, sir. The substance to be powdered is subjected to a great amount of attrition by the rapid motion of the paddles and the contact with its own particles; as fast as very fine powder is made, it is blown out into the air, or proper chambers. In the large size, the powder is delivered at a distance of a hundred feet. This little one will powder soft substances.

Dr. SQUIBB.—The fact seems to be that this mill has not been tried in any successful way to powder drugs, but it comes before us as adapted to powdering coals. That has been tried and pretty thoroughly.

Dr. Squibb read the report of the Committee on queries, which, on motion, was adopted.

QUERY 1st.—What is the quality, proportion of oxide of mercury, &c., in Hydrargyrum cum creta of commerce, selecting specimens recently prepared by manufacturers, and others from the dispensing bottles of pharmacists? *Accepted by Joseph P. Remington, of Brooklyn, N. Y.*

QUERY 2d.—Is the official process for Acidum Hydriodicum the best that can be practically suggested?

Accepted by John A. Dunn, of Brooklyn, N. Y.

QUERY 3d.—What additions to Epsom salt will diminish its bitter and nauseous taste, without materially altering its properties? The answer to be accompanied by samples of solutions made by processes suggested.

Accepted by Isaac W. Smith, of Philadelphia, Pa.

QUERY 4th.—What are the sources and commercial history of Mexican Sarsaparilla, and how does it compare with other commercial varieties?

Accepted by Ferris N. Colby, of New York City.

QUERY 5th.—What are the facts in regard to the production of Oil of Camphor of Formosa? Is it a residuum from the manufacture of crude Camphor, and what are the causes of its comparatively high price?

Accepted by H. C. Archibald, of Philadelphia, Pa.

QUERY 6th.—To what extent is Chicory—*Cichorium intybus et alia*—introduced into commerce as a substitute for Taraxacum?

Accepted by G. F. H. Markoe, of Boston, Mass.

QUERY 7th.—What is the best mode of preserving and dispensing Chlorinated Lime to prevent its loss of Chlorine by exposure? with an examination of the composition of some old and damp specimens in the shops.

Accepted by C. F. Chandler, of New York.

QUERY 8th.—What is the nature of the crystalline deposit in Fluid Extract of Cloves, on long standing, made by the process of Professor Procter, reported to this Association? Is it present in the drug, or the result of the oxidation of the oil?

Accepted by F. Llewellyn, of Louisville, Ky.

QUERY 9th.—Is Coffee a useful antidote to organic poisons, as so generally stated? What is the *rationale* of its action, to what extent may it be relied upon, and in what form is it best kept for use?

Accepted by Theobald Frohwein, of New York.

QUERY 10th.—Are the principles in Buchu, which are soluble in water and insoluble in alcohol, important medicinal constituents of the drug? and should they be retained in its pharmaceutical preparations?

Accepted by Thos. A. Lancaster, of Philadelphia, Pa.

QUERY 11th.—Is the so-called "Gelseminia" a neutral or alkaloid principle? Does it exist in the leaves and in the wood of the root, or only in the bark? and does it represent the activity of the plant?

Accepted by Charles L. Eberle, of Philadelphia, Pa.

QUERY 12th.—Is there any practicable method of separating Tannic Acid from tonic tinctures and infusions of which it is an incidental, and

not an important constituent, so that they may be prescribed with the soluble salts of iron without becoming black?

Accepted by Theobald Frohwein, of New York.

QUERY 13th.—To what extent is competition a useful means in promoting pharmaceutical progress? what are the most common forms of abuse to which it is liable, and what are its proper ethical limitations?

Accepted by Samuel M. Colcord, of Boston, Mass.

QUERY 14th.—Would the adoption of a universal Pharmacopœia be an improvement upon the present system of national standards? and if so, how can it best be brought about?

Referred to Thomas Doliber, of Boston, Mass.

QUERY 15th.—What are the best reasons for and against the introduction of the metrical system of weights and measures into the United States for medical purposes, and for commercial use generally?

Accepted by J. F. Babcock, of Boston, Mass.

QUERY 16th.—How far is Pharmacy entitled to rank as a profession, and what is its true position among the industrial pursuits?

For general acceptance.

QUERY 17th.—What is the best scheme of practical instruction for young men preparing for the business of pharmacists, aside from necessary service in the shop, with especial view to those who are unable to attend a College of Pharmacy?

Accepted by E. Parrish, of Philadelphia, Pa.

QUERY 18th.—What is the Morphia strength of commercial Powdered Opium, (a number of samples,) and what is the most ready means of determining it?

Accepted by P. W. Bedford, of New York.

QUERY 19th.—What is the Morphia strength of Sulphate, Muriate and Acetate of Morphia, respectively, as usually met with in commerce? and what is the most ready means of determining it?

Accepted by P. W. Bedford, of New York.

QUERY 20th.—What are the best practical tests for the purity of Bromide of Potassium?

Accepted by G. Krehbiel, of New York.

QUERY 21st.—What are the best tests for the purity of Carbolic Acid, and what are its most useful combinations and applications? also, what common name should be adopted for this article, as mixed with the other coal-tar alcohols associated with it?

Accepted by C. F. Chandler, of New York.

QUERY 22d.—What are the practical reactions between the Permanganates and Alcohol of various strengths and degrees of cleanness, and how far can such reactions be made available for producing Deodorized Alcohol, Cologne Spirit, or clean Alcohol, upon the small scale, with special reference to the Alcohol recovered from Fluid Extracts and other Galenical preparations?

Accepted by G. F. H. Markoe, of Boston, Mass.

QUERY 23d.—What are the objections, if any, to the officinal process for Ferri et Potassæ Tartras? and is the salt of commerce practically identical with that of the Pharmacopœia?

Accepted by P. W. Bedford, of New York.

QUERY 24th.—The U. S. Pharmacopœia defines Valerianic Acid as having a sp. gr. 0.933. Is this sufficiently accurate for practical purposes? and if not, what standard should be adopted?

Accepted by F. C. Mussgiller, of Brooklyn, N. Y.

QUERY 25th.—From what sources in this country can metallic Bismuth be obtained, and to what amount are they rendered available?

Accepted by C. A. Tufts, of Dover, N. H.

QUERY 26th.—It is found that the process of the U. S. Pharmacopœia for Pyrophosphate of Iron yields a preparation which it is sometimes impossible to scale. Can a better process be devised?

Accepted by S. P. Duffield, of Detroit, Mich.

QUERY 27th.—What are the best and most economical means for ventilating the laboratory and shop of the pharmacist, so as to promote the health of the occupants, without too much expense of fuel in winter?

Accepted by H. T. Cummings, of Portland, Me.

QUERY 28th.—What are the causes of the variations in appearance of Blue Mass in commerce, very little of which is identical with that of the U. S. Pharmacopœia? Which of the ingredients is generally deficient?

Accepted by P. W. Bedford, of New York.

QUERY 29th.—Can any improvement be suggested in Syrupus Lactucarii, U. S. P. 1860?

Accepted by P. W. Bedford, of New York.

QUERY 30th.—Is there a rapid method by which suppositories can be prepared, whereby the use of a hardening ingredient in connection with cocoa butter will not be required?

Accepted by Chas. L. Eberle, of Philadelphia, Pa.

QUERY 31st.—Does the addition of metallic Iron or Zinc to ordinary Hydrochloric Acid which contains Sulphuric Acid as an impurity, decompose the Sulphuric Acid, and liberate Sulphide of Hydrogen?

Accepted by E. R. Squibb, of Brooklyn, N. Y.

QUERY 32d.—Does the lactescent juice of the indigenous *Lactuca elongata* possess properties similar to those of European *lactucarium*?

Accepted by John M. Maisch, of Philadelphia, Pa.

To the above list the following queries were added, which were, by vote of the Association, continued to the respective members for another year:

QUERY 33d.—Conia has been recommended as a therapeutic agent, but it is liable to alteration from atmospheric oxygen. As the salts of conia appear to be permanent, and are odorless, why may not some of these be substituted for the alkaloid?

Continued to George C. Closs, of Brooklyn, N. Y.

QUERY 34th.—Do the leaves of *Digitalis purpurea*, grown in the United States, yield less digitalin than the European plant; and is the alleged inferiority of the former, if this be true, due to a deficiency of this principle?

Continued to Samuel P. Duffield, Ph. D., Detroit, Mich.

QUERY 35th.—It has been asserted that Yellow Wax is better than bleached wax, for the preparation of Ceratum and Unguentum Adipis. If this be true, what principle in the crude wax possesses this property, and for what extent of time may its conservative power be relied upon?

Continued to Ferris Bringham, of Wilmington, Del.

QUERY 36th.—Diluted Hydrocyanic Acid, U. S. P., sometimes spontaneously decomposes into paracyanogen and other products, acquiring a black color, which M. Millon attributes to the action of ammonia. Will the presence of a minute portion of SO_2 , HO obviate this, as has been asserted, and when the change has commenced will this addition suspend it?

Continued to Dr. E. R. Squibb, of Brooklyn, N. Y.

QUERY 37th.—Extract of Hemlock Bark (*Abies Canadensis*); what is its composition, what variety of tannic acid does it contain, how made, and what are its merits as a medicinal astringent compared with Kino, Catechu and Krameria?

Continued to Prof. William Procter, Jr., Philadelphia.

QUERY 38th.—A process for isolating Aloin in a crystalline state, which shall be practical and economical, by which the whole of the Aloin in aloes may be rendered available.

Continued to Prof. William Procter, Jr., Philadelphia.

QUERY 39th.—What are the physiological properties of the leaves of *Ricinus communis*, and what constituent renders them active?

Continued to F. V. Heydenreich, Brooklyn, N. Y.

QUERY 40th.—The leaves of *Podophyllum peltatum* are said to be poisonous (U. S. Disp.) Is this true? Are they cathartic, and to what principle is their activity due?

Continued to Samuel P. Duffield, Ph. D., Detroit, Mich.

QUERY 41st.—It is alleged by Mr. George Johnson (*Pharm. Journ.*, Oct., 1865, p. 179) that the deposit in wine of Ipecac contains an appreciable quantity of Emetia in an insoluble state, contrary to the experiments of Mr. Roberts. (See *Proc. Amer. Pharm. Assoc.*, 1859, p. 281.) Is this true, and how can it be demonstrated?

Continued to G. F. H. Markoe, Boston, Mass.

QUERY 42d.—May not Extractum Conii and Extractum Conii Alcoholicum, U. S. P., be rendered more permanent and stronger by the addition of an acid before evaporation,—as the acetic or sulphuric?

Continued to Edw. C. Jones, of Philadelphia.

QUERY 43d.—What is the best formula for medicinal Digitalin, suited for adoption in the U. S. Pharmacopœia?

Continued to William Procter, Jr., Philadelphia.

QUERY 44th.—Does Sulphite of Quinia exist? Is it a permanent salt? and, if so, has it any merit as a therapeutic agent independent of its basic ingredient?

Continued to Dr. Thos. E. Jenkins, Louisville, Ky.

QUERY 45th.—Can the officinal salt Ferri et Potassæ Tartras be uniformly produced by the Pharmacopœia process? What is its composition? What are the residues of the process, and can the process be improved?

Continued to James F. Babcock, Boston.

QUERY 46th.—What is the best form of apparatus by which pressure steam, generated by gas or petroleum heat, may be applied for evaporation, distillation, etc., on a moderate scale, at the working counter of the shop, so that the condensed steam shall return to the boiler, combining efficiency and compactness with economy?

Continued to Prof. William Procter, Jr., Philadelphia.

Mr. Colcord, of Boston, rose and made the following remarks:

I want to say one word in regard to the publication of our proceedings. This year we are expecting to get a large remuneration from the means we have taken to add to our finances, although we shall lose the benefit of life-membership. Now my eyes are getting old, and I want to read these proceedings. I think it would be better to publish them in a little better and bigger type. I think the economy has been to make the proceedings small. We have a reporter: the report will be written out in full, and I would like to see the discussions put in; then it will make a more respectable volume.

Dr. SQUIBB.—I agree with Mr. Colcord. I should like to see the phonographic report published almost entirely, if not entirely, cutting out only the colloquial parts that can be easily cut out without injury. The dentists have adopted the plan of publishing every word. If a man talks about angel's wings, when a subject is up for discussion, that is reported and the whole thing published in full; and this course has redounded to their credit. We might very well include, if not the whole, a large proportion of our phonographic report. One thing has been omitted. The Committee on Specimens have had an arduous duty—much more so than they expected to find it. The number of articles exhibited is very great, and the duty of going over them and simply cataloguing them has been quite as much as that Committee has been able to do. They have been occupied with that duty ever since they were appointed, and, besides making a catalogue, have made their own notes with regard to the various articles they have seen. It is quite impossible, as any member can see, for them to present a report at this time at all adequate to the occasion: to merely slur the matter over by saying that such and such things were present, as has been done, seems to be doing injustice to these objects; and the Business Committee, therefore, beg to ask the Association to indulge these gentlemen to make their report and submit it to the Perma-

nent Secretary this or next month. I move that this Committee be allowed to make its report, whenever it pleases within the next month, to the Executive Committee.

The motion was carried.

Dr. SQUIBB.—The Business Committee offer the following resolutions :

Resolved, That the thanks of the Association are due, and are hereby offered to its local members and many others who, though not members, are understood to have been instrumental in the success and entertainment of the present annual Convention ; also,

Resolved, That we thank our highly competent and careful reporter, Mr. James H. Slade, of Boston, for his successful efforts in our behalf, and the public reporters who have honored us by their notices.

The resolutions were unanimously adopted.

Mr. TURRS.—I would state that our worthy President has this morning handed me a donation of twenty dollars to the funds of this Association ; also that, in addition to Mr. Colcord, who signed the negative paper yesterday, our friends J. F. Moore and E. T. Ellis have notified me that they should send me twenty dollars. Our friends Lincoln, Dr. Cummings and Haviland have also sent contributions.

On motion the reading of the minutes of the last session was dispensed with.

Dr. Squibb moved that the Association now adjourn to meet in the city of Philadelphia, on the second Tuesday of September, 1868, at 3 o'clock in the afternoon.

The resolution was adopted unanimously, and the Association then adjourned.

JOHN M. MAISCH, *Permanent Secretary*.

On Friday afternoon, at three o'clock, the members and many friends of the Association, accompanied by ladies, left in the steamer Thomas Collyer for a harbor excursion, passing the Narrows, as far as Sandy Hook, then turning toward Keyport and up the Hudson River to Yonkers, from whence they returned, arriving at the pier about 9 o'clock. The charming weather ; the splendid commodious steamer, giving ample room for promenading ; the beautiful scenery along the banks of the Hudson River ; the grand view of the Atlantic ocean when nearing Sandy Hook, and, on the upward trip, the imposing panorama of the Metropolis of this Continent and her sister cities, Brooklyn, Jersey City, &c. : all this added to the enjoyment and made a lasting

impression on those present. During the entire trip an excellent band heightened the pleasure by music, which, for a time, invited some of the company to dancing. After the sumptuous collation, the partial lunar eclipse and the aurora borealis were visible, thus increasing the interest and enjoyment of the delightful evening. During the latter portion of the excursion, the members of the Association, who had come from a distance to participate in the proceedings of the Fifteenth Annual Meeting, assembled in the cabin and organized a meeting by calling Chas. A. Tufts, of Dover, N. H., to the Chair.

Thos. S. Wiegand, of Philadelphia, after some remarks introduced the following:

Resolved, That the members of this Association, visiting this city, hereby express their thanks to their New York friends for the great kindness and attendance they have received, and they especially acknowledge the untiring industry of their Local Secretary, Mr. P. W. Bedford, by which he successfully obtained so fine a collection of specimens, interesting to our trade.

The resolution being seconded, the question was put, and it was carried by an unanimous vote.

The Permanent Secretary was requested to publish the proceedings of this meeting in the forthcoming volume, which he promised.

It was then moved by John M. Maisch, of Philadelphia, and seconded by Fleming G. Grieve, of Milledgeville, Ga., that a committee of three be appointed by the Chair to convey to Prof. Bedford the appreciation of his services as expressed in the resolution.

The motion was carried, and the Chair appointed to that duty John M. Maisch, of Philadelphia, Pa.; Fleming G. Grieve, of Milledgeville, Ga., and C. H. Dalrymple, of Morristown, N. J.

There being no further business, the meeting adjourned *sine die*.

The Committee appointed, waited upon Mr. Bedford, and, after some appropriate remarks, the chairman of the Committee read the resolution passed by the visiting members, to which Prof. Bedford answered in an eloquent speech, expressing his thanks and his hope of meeting all members next year in the city of Philadelphia.

JOHN M. MAISCH, *Recording Secretary*.

REPORTS OF COMMITTEES.

REPORT ON THE PROGRESS OF PHARMACY.

Submitting this report in behalf of the Committee on the Progress of Pharmacy, the Chairman desires to state that a slight change has been effected in its arrangement, consisting in the consolidation of Analytical Chemistry and Chemistry proper. The principal reason for so doing is, that it will simplify the arrangement and bring to notice all that is new in regard to a chemical in the most condensed form. Moreover, the analytical results and reactions of chemicals bear such intimate relation to their general characters, that their separate consideration is scarcely justified in a report intended chiefly for the instruction of pharmacists.

The past twelve months have been characterized by remarkable activity, and consequent progress in the science of Pharmacy. Toward this end the Universal Exposition at Paris has undoubtedly in a great measure given the incentive. The United States, although not as well represented at the Exposition as might be expected, yet may compare favorably, in the number of its representatives in the class of Chemistry and Pharmacy, with other countries, when the distance, inconvenience of transportation, and the comparative infancy of our institutions is taken into consideration.

Since our last meeting Part II. of the new Russian Pharmacopœia has been issued, and is spoken of in high terms as a pharmaceutic standard. The Codex Medicamentarius (*Pharmacopée Française*) has also made its appearance. In contents it far excels any of its contemporaries, containing no less than 784

pages, in royal octavo form. Competent critics do not speak in the most favorable terms of its value as a pharmaceutic standard, as it contains a large number of old and obsolete formulæ; it contains, however, much that is valuable and may be studied with interest and profit. The new edition of the British Pharmacopœia appeared during the early part of summer, in a thoroughly revised condition. It is said to be greatly improved in its general arrangement and nomenclature, and contains several new additions, among which an index giving the common names of substances, a condensed list of all the preparations in which the drug under consideration is contained, and a list of doses of the different drugs.

The British Pharmaceutical Conference, which was held about the same time as our last meeting, was very largely attended, and it is pleasing to note the interest manifested by its members in the progress of Pharmacy. The President, Prof. Bentley, in his opening address, spoke highly of the importance of Botany in its bearings on Pharmacy, a more general knowledge of that science among pharmacists being calculated to introduce and utilize many medicinal plants now almost unknown. The paper of Mr. Joseph Ince on *Pharmaceutical Ethics* deserves mention in this connection; it is an admirable production, and completely exhausts the subject. The business of the Conference was concluded in four sittings, and undoubtedly has been the source of much benefit to the science of Pharmacy, as well as toward the promotion of good fellowship among its members. Prof. Bentley has been re-elected President. The next Conference is to be held at Dundee, Scotland.

From all sources of information it is noted that Pharmacy is most firmly securing its position as a science, and to this end renewed activity is noted in the establishment of colleges and publication of journals, not only in the United States, but also on the South American continent.

In Australia, Pharmacy appears to make but slow progress, as there appears to be a lack of properly educated pharmacists. Pharmacy is regarded to a certain extent as a trade, in which any one may engage that has capital enough to furnish a store. Attention has been awakened in this direction, however, and it

may not be long ere Australian Pharmacy will assume a more respectable status.

The subject of Chinese Pharmacy has elicited a number of papers during the past year, from which it would appear that although the Chinese are far behind their European and American contemporaries in resources and knowledge of Pharmacy, they prepare many remedies which are used with specific success in the treatment of diseases.

The suggestion of Mr. E. Sander, in the report on the Progress of Pharmacy for 1866, that a permanent reporter on the Progress of Pharmacy be appointed, is heartily seconded by the Chairman of your Committee. It is impracticable that every member of the Committee should share in the labors, for which reason the duties have heretofore always been assumed by the Chairman. Considerable routine is necessary, however, to the proper extraction and framing of the report, and it would therefore result most beneficially if it was placed permanently in the hands of a competent member.

The report has been compiled from the following Journals, which, although not completely extracted, it is believed contain nothing besides of remarkable interest to Pharmacy:—

American Journal of Medical Sciences,	<i>A. J. Med. Sc.</i>
American Journal of Pharmacy,	<i>A. J. Ph.</i>
American Druggists' Circular,	<i>A. D. Cir.</i>
Pharmaceutical Journal and Transactions,	<i>Ph. J. Trans.</i>
Dental Cosmos,	<i>Dent. Cos.</i>
Chemical News,	<i>Ch. N.</i>
Annalen der Chemie und Pharmacie,	<i>Ann. Ch. Pharm.</i>
Journal für praktische Chemie,	<i>J. prakt. Ch.</i>
Chemisches Centralblatt,	<i>Ch. C. B.</i>
Archiv der Pharmacie,	<i>Arch. Ph.</i>
Neues Repertorium f. die Pharmacie,	<i>N. Rep.</i>
Neues Jahrbuch f. die Pharmacie,	<i>N. Jahrb. Ph.</i>
Vierteljahresschrift für Pharmacie,	<i>Viertelj. Ph.</i>
Pharmaceutische Zeitschrift f. Russland,	<i>Ph. Zeits. Russ.</i>
Sitzungsberichte d. Akademie d. Wissen- schaften, Wien,	<i>Wiener. Ak. Ber.</i>
Sitzungsberichte d. Akademie d. Wissen- schaften, München,	<i>Munch. Ak. Ber.</i>

OBITUARY.

Prof. John Addison Porter, formerly Professor of Organic Chemistry at Yale College, died at New Haven, Conn., on the 25th of August, 1866, aged 43 years.

Dr. Mettenius, Professor of Botany at the University of Leipzig, died on the 20th of August, 1866, aged 43 years.

Dr. Gottfried Wilhelm Osann, Professor of Physics and Chemistry at the University of Würzburg (Bav.), died on the 10th of September, 1866, aged 69 years.

Dr. George Friedrich von Jaeger, Professor of Chemistry and Natural History at the Gymnasium of Stuttgart, died on the 10th of September, 1866, aged 81 years.

Dr. von Schlechtendal, Professor of Botany at the University of Halle, died on the 12th of October, 1866, aged 72 years.

Ed. François Frémy, a venerable French pharmacien, died at Versailles on the 10th day of November, 1866, aged 93 years. M. Frémy has left two sons, both of whom are well known in the scientific world.

Dr. Carl Otto Berg, the eminent botanist, Professor of Botany and Pharmacognosy at the University of Berlin, died on the 20th of November, 1866.

Dr. George Fresenius, Professor of Botany at Frankfort-on-the-Main, died on the 1st of December, 1866, aged 60 years.

Dr. Diesing, the eminent botanist and mineralogist, died at Vienna, Austria, on the 10th of January, 1867.

M. Houton de Labillardière, formerly Professor of Chemistry at Rouen, died at Alençon, France, in February, 1867, aged 73 years.

Albrecht Heinrich Gummi, an eminent Bavarian pharmacist, died at Culmbach, Bavaria, on the 6th of March, aged 82 years.

Prof. Alexander Dallas Bache, for many years Superintendent of our Coast Survey, died in April of this year, from cerebral disease, induced by excessive mental engagement.

M. Reynlens, one of the founders of the Pharmaceutical Society of Bruxelles, died on the 3d of April, 1867, aged 80 years.

M. Leroy, a distinguished Belgian pharmacist, and one of the founders of the Pharmaceutical Society of Bruxelles, died on the 11th of April, 1867, aged 64 years.

M. Pelouze, one of the best and most celebrated of French chemists, died on the heights of Bellevue, near Mendon, on the 31st of May, aged 60 years. He was, at the time of his decease, master of the mint.

AMERICAN PUBLICATIONS.

Chemical Tables. Stephen C. Sharpless. Cambridge, Sever and Francis.

Practical Mineralogy, assaying and mining. Frederick Overman. Philadelphia, Lindsay & Blakiston.

An Introductory to Practical Chemistry, including analysis. John E. Bowman and Chas. L. Bloxam. 4th Amer., from 5th Lond. ed. Philadelphia, H. C. Lea.

A Monograph of Glycerin and its uses. Henry Hartshorn, M. D. Philadelphia, J. B. Lippincott.

Fermented Liquids. Dr. Lewis Feuchtwanger. New York, 5th edition.

The Mineral Waters of the United States. J. J. Moorman, M. D. Baltimore, Kelly & Piet.

Chemistry of the Farm and Sea. J. R. Nichols, M. D. Boston, Williams & Co.

Notes on the Origin, Prevention and Treatment of Asiatic Cholera. J. C. Peters, M. D. New York, Van Nostrand.

Elements of Medical Chemistry. B. Howard Rand. Philadelphia, Zell & Co.

Practical Therapeutics. Ed. J. Warring. From 2d London edition. Philadelphia, Lindsay & Blakiston.

Manual of Materia Medica and Therapeutics. Abridged from Pareira's *Materia Medica*. Horatio C. Wood, Jr., M. D. Philadelphia, H. C. Lea.

Synopsis of the various courses of practical instruction in the School of Analytical and Applied Chemistry in the University of Michigan. Silas H. Douglas, M. D. Ann Arbor.

The Art of Perfumery. B. G. Septimus Piesse. 2d Amer., from 3d London edition. Philadelphia, Lindsay & Blakiston.

The Art of manufacturing Soap and Candles. Adolph Ott. Philadelphia, Lindsay & Blakiston.

A new Chemical Nomenclature. B. S. D. Tillman. Albany, C. Van Benthuysen & Sons.

An inquiry into the Origin of Modern Anæsthesia. Truman Smith. Hartford, Brown & Gross.

The Microscope in its application to Practical Medicine. 3d edition. L. S. Beale. Philadelphia, Lindsay & Blakiston.

Ornithology and Oology of New England. E. A. Samuels. Boston, Nichols & Noyes.

Wills' Tables of Qualitative Analysis. Translated. C. F. Himes. Philadelphia, H. C. Baird.

Digitaline, its chemical, physiological and therapeutic action. S. R. Percy. Philadelphia, Collins.

American Medical Association. Code of medical ethics. New York, W. H. Wood & Co.

Proceedings of the American Pharmaceutical Association. Philadelphia.

Proceedings of the Alumni Association of the Philadelphia College of Pharmacy. Philadelphia.

An elementary manual of Qualitative Chemical Analysis. Maurice Perkins. New York, Wiley & Son.

Notes on Epidemics. F. E. Anstie, M. D. Philadelphia, Lippincott & Co.

Cholera: facts and conclusions as to its nature, prevention and treatment. H. Hartshorn, M. D. Philadelphia, Lippincott & Co.

ENGLISH PUBLICATIONS.

Life of Benjamin Silliman. George Fisher. London, Sampson Low, Son, & Marston.

Lessons in Elementary Chemistry. H. E. Roscoe. London, Macmillan & Co.

The Year Book of Pharmacy. Charles H. Wood and Charles Sharp. London, Churchill.

Chemistry of Common Things. Stephenson Macadam. London, Nelson.

Little Experiments for Little Chemists. W. H. Walenn. London, Allman.

Lecture Notes for Chemical Students, embracing mineral and organic chemistry. E. Frankland. London, Van Voorst.

Cyclopædia of Useful Arts, mechanical and chemical manufactures, mining and engineering. Vol. iii. Charles Tomlinson. London, Virtue.

Outline Facts of Chemistry, with exercises. T. Ward. Manchester, Heywood.

Elements of Chemistry, theoretical and practical. W. Allen Miller. London. Longmans, Green & Co.

Inorganic Chemistry. George Wilson. Revised and enlarged by Stephenson Macadam. London, Chambers.

A Companion to the British Pharmacopœia; comparing the strength of the various preparations with those of the London and Dublin editions, and the United States and other foreign Pharmacopœias. Peter Squire. London, Churchill & Sons.

On the future Water Supply of London. G. W. Hemans and R. E. Hassard. London, Stanford.

The Inductorium, of Induction Coil. H. M. Noad. London, Churchill & Sons.

Hand-book of Natural Philosophy. G. E. Fortes. London, Walton & Maberly.

On Crystal Cod-liver Oleine. J. and A. Bedford. London, 155 Leadenhall St.

Watts' Dictionary of Chemistry. Parts 36 and 37.

The Elements of Chemistry, inorganic and organic. J. C. Buckmaster. London, Longman & Co.

Elementary Treatise on Physics, experimental and applied. Translated and edited from Ganot's *Éléments de Physique*. E. Atkinson. 2d ed. London, Baillière.

Descriptions of the new Telescopes with silvered glass Specula, and instructions for adjusting and using them. John Browning. London, Straker & Sons.

The Student's Text Book of Electricity. Henry M. Noad. London, Lockwood & Co.

The Arrest and Prevention of Cholera; being a guide to the antiseptic treatment. A. E. Sansom. London, Churchill.

Asiatic Cholera. F. A. Burrall. New York, Wm. Wood & Co. London, Stevens Bros.

Reprint from the Appendix to the third Report of the Cattle Plague Commission. By Wm. Crookes. London, S. H. Dutton.

An Elementary Treatise on Heat. Balfour Stewart. London, Macmillan & Co.

The Management of Steel. 4th revised ed. Geo. Ede. London, Wm. Tweedie.

Intensity Coils; how made: how used. Dyer. London, Suter, Alexander & Co.

Buckmaster's Physiology. London, Longman & Co.

On the Results of Spectrum Analysis, applied to the heavenly bodies. Wm. Huggins. London, Wm. Ladd.

Water; Its Impurities and Purification. London.

The Pill Book. Arnold J. Cooley. London, Robert Hardwicke.

A Dictionary of Photography. T. Sutton and G. Dawson. London, Sampson Lord, Son & Marston.

Chemical Manufacturers' Dictionary of England. 1867. London, Kent & Co.

An Essay on Dew, and several appearances connected with it. R. Strachan. London, 1866.

Familiar Lectures on Scientific Subjects. Sir F. W. Herschel. London, Alex. Strahan.

Chemical Notes for the Lecture Room. Dr. Wood. London, W. H. Warr & Co.

On the Poisons of the Spreading Diseases. B. W. Richardson. London, H. Baillière.

Lectures on some of the Applications of Chemistry and Mechanics to Pathology and Therapeutics. H. Bence Jones. London, Churchill.

The Analyses, Technical Valuation, Purification and Use of Coal Gas. W. R. Bowditch. London, Sper.

British Pharmacopœia. London, Churchill.

FRENCH PUBLICATIONS.

Recherches Chimiques sur le Cerveau. A. E. Bourgoin. Paris, Pillet fils aîné.

Histoire des Connaissances Chimiques. E. Chevreul. Paris, Moyan.

Atmidométrie ; Recherches expérimentales sur l'évaporation. A. Collin. Orleans, Herluison.

Recherches Chimiques sur l'Eau thermale sulfurée de Schinznach, canton d'Argovie (Suisse). Louis Grandeau. Paris, Germer Baillière.

Essai sur les caractères physiques, organs leptiques et chimiques que doivent présenter les principales préparations pharmaceutiques, officinales, &c., &c. P. H. Lepage. Paris, Giraud.

Exposition Universelle de Londres 1862. Class 2, Sect. A. Rapport sur les produits et procédés chimiques. A. W. Hofmann. Paris, Bureau du Moniteur Scientifique.

Manuel du Distillateur Amateur à l'usage des personnes à la campagne. Andre Pentier. Paris, l'Auteur.

Les Eaux Minérales de Vichy. Casimir Daumas. Paris, L. Hachette & Co.

Du tabac, son histoire, sa culture, sa fabrication, son commerce, ses propriétés médicales et toxiques, &c. G. A. Henricck. Paris, Desloyes.

'De l'influence des découvertes les plus modernes dans les sciences physiques et chimiques sur le progrès de la chirurgie. Hippolyte Jaquemet. Paris, A. Delahaye.

Manuel du Chimiste Agriculteur. A. F. Pouriau. Paris, E. Lacroix.

Notions de Chimie conformes au programme officinel arrêté le 25 Mars, 1865, pour l'enseignement de la chimie dans le classes de philosophie. Boulet de Monvel. Paris, L. Hachette & Co.

Notes sur quelques matières tinctoriales des Chinois. J. O. Debeaux. Paris, Savy.

Revue analytique de la Chimie contemporaine. H. C. Delavaue. Paris, Racon & Co.

Equivalents, atomes, molécules. E. Grimaux. Paris, Savy.

Théorie générale de l'exercice de l'affinité. J. E. Maumené. Paris, Goupy.

Recherches de Chimie appliquée. J. Nicklès. Nancy, Ve Raybois.

Notice sur la fabrication en grand de l'alcool avec le marc de raisin. C. Weinberger et L. Lafourcade. Aux, F. A. Cocharaux.

Hydrométrie. Bontron et Boudet. Paris, V. Masson et fils.

Leçons Élémentaires de Chimie moderne. Ad. Wurtz. Paris, V. Masson et fils.

L'ammoniaque dans l'industrie. Ch. Tellier. Paris, Gaittet.

Connaissance des plantes les plus souveraines pour la conservation de la santé. F. Rouget. Toulouse, l'Auteur.

Études sur le vin, ses maladies, causes que les provoquent, procédés nouveaux pour le conserver et pour le vieillir. L. Pasteur. Paris, V. Masson et fils.

Office des distillateurs, manuel ou livre de recettes simplifiées pour fabriquer soi-même les sirops ou liqueurs par la distillation des plantes aromatiques ou par essences. Paris, Ch. Guérin.

Sur la dénaturation du sel destiné à l'agriculture. J. Nicklès. Nancy, V. Raybois.

Instruction pratique sur l'application des silicates alcalins solubles au durcissement de pierres à la peinture, à l'impression et aux apprêts. F. Kuhlmann. Lille, Danel.

Memoire sur le coca de Pérou, ses caractères botaniques, sa culture, ses propriétés hygiéniques et thérapeutiques. M. A. Fuentes. Lyon, Cherblanc et Co.

Codex Medicamentarius. Paris, J. B. Baillière et fils.

Étude sur la vinification. Henri Lavalle. Carpentras, Boyel.

Notions de Physique et de Chimie expérimentales et amusantes. F. Lagarrique. Paris, Dupont.

GERMAN PUBLICATIONS.

Atlas aller in den neusten Pharmacopœen Deutschlands aufgenommenen officinellen Gewächse, &c., &c. W. F. W. Artus. Leipzig, W. Bænsch.

Der Werth der bestehenden Milchproben. Joh. Feser. München, Fleischmann.

Die Anilinfarbestoffe, ihre Darstellung, Constitution, Synonymik und Verfälschungen. A. Geisler. Dorpat, Gläser.

Handbuch der Chemischen Technologie. Bolley. Braunschweig, Vieweg & Sohn.

Medicinisch-chemische Untersuchungen. Felix Hoppe-Seyler. Berlin, A. Hirschwald.

Die Werthlosigkeit einer grossen Anzahl von chemischen Formeln. A. Koenig. Berlin, Springer.

Untersuchungen über das Entstehen der Hippursäure im thierischen Organismus. G. Meissner u. C. U. Sheppard. Hanover, Hahn.

Formeln der Chemischen Reactionen nach dem Unitar-System für die bei der qualitativen Analyse häufiger vorkommenden Körper. N. Netschajeff. Berlin, Adolf & Co.

Technologie des Anilins. M. Reimann. Berlin, Springer.

Lehrbuch der Chemie für Landwirthe. Franz Schulze. Leipzig, Baumgärtner.

Die Prüfung der Arzneimittel. Ewald Wolff u. B. Hirsch. Berlin, v. Decker.

Grundlehren der theoretischen Chemie. H. L. Buff. Erlangen, F. Enke.

Ueber den Stoffwechsel eines Diabetikers verglichen mit dem eines Gesunden. Carl Gaehtgens. Dorpat, Gläser.

Chemische Untersuchungen eines unter-devonischen Profils, an der Bergstrasse in Dorpat. J. Lemberg. Dorpat, Gläser.

Die Spektralanalyse. Andreas Lielega. Weimar, Voigt.

Das specifische Gewicht der Essigsäure u. ihrer Gemische mit Wasser. A. C. Ondmans. Bonn, Cohen u. Sohn.

Vollständiges Handbuch der Leistungsfähigkeit der deutschen und österreichischen chemischen Fabrik-Industrie. Alex. Rabe. Berlin, Schotte & Co.

Kurzer Gang in der chemischen Analyse. A. Geuthier. Jena, Döbereiner.

Ueber die Oxidationsproducte des Cumols. H. G. Hirtzel. Leipzig, S. Hirtzel.

Hilfstafeln zur Berechnung der Bodenkraft-erschöpfung, &c. Franz Kraufner. Prag, Reichenecker.

Handwörterbuch der technischen Chemie. R. Böttger u. N. Gräger. Weimar, Voigt.

Die künstlichen Düngemittel als Grundlage der neuern intensiven Landwirthschaft. A. Desde. Weimar, Voigt.

Der Wein, seine Bestandtheile u. seine Behandlung. J. Nessler. Chemnitz, Focke.

Grundriss der unorganischen Chemie gemäss der neueren Ansichten. C. F. Rammelsberg. Berlin, C. G. Lüderitz.

Regesten der Sodafabrication. Eine technologisch-historische Skizze. R. Wagner. Leipzig, O. Wiegand.

Die anorganische Chemie, mit besonderer Rücksicht auf Technologie. 2 Aufl. Bromeis. Stuttgart, Franckh.

Ein Blick auf die Geschichte der Chemie. H. L. Buff. Erlangen, F. Enke.

Die chemisch-technischen Mittheilungen der neusten Zeit. L. Elsner. Berlin, Springer.

Handbuch der Histologie u. Histochemie des Menschen. H. Frey. Leipzig, Engelmann.

Leitfaden für den ersten Unterricht der Chemie an Gewerbeschulen. Chr. Hammon. Kaufbeuren.

Handbuch der Pharmacognosie des Pflanzen- und Thierreichs, nach dem neusten Standpunkte bearbeitet. J. B. Henkel. Tübingen, Laupp.

Jahresbericht über die Fortschritte auf dem Gesamtgebiete der Agricultur-chemie für 1865. Begründet von R. Hoffman; fortgesetzt von E. Peters. Berlin, 1867, Springer.

Lehrbuch der organischen Chemie. Band ii. A. Kekule. Erlangen, Enke.

Ueber die Verwandlung der fetten Säuren in die Alkohole der parallel stehenden Reihe. A. Strecker u. O. Veiel. Tübingen, Laupp.

Lehrbuch der pharmaceutischen Technik. F. Mohr. Braunschweig, Vieweg u. Sohn.

Anleitung zur Chemischen Analyse für Anfänger. Fr. Rüddorff. Berlin, Guttentag.

Beitrag zur Kenntniss der Sulfinverbindungen. A. Strecker u. F. Dehn. Tübingen, Laupp.

Ueber das Verhalten des Alloxans zu Asparagin. A. Strecker u. C. Merz. Tübingen, Laupp.

Kurzer Abriss der chemischen Analyse, als Leitfaden bei

praktischen Arbeiten im Laboratorium. V. Kletzinsky Wien, Sallmayer & Co.

Leitfaden für den chem. Unterricht an Unterrealschulen. Fr. Mareck. Wien, Sallmayer & Co.

Taschenbuch der Geheimmittellehre. G. C. Wittstein. Nördlingen, Beck.

Kurzgefasstes Lehrbuch der Maasanalyse. F. A. Flückiger. Berlin, Gaertner.

Anleitung zu chemischen Untersuchungen mit besonderer Beziehung auf Landwirthschaft, &c. F. V. Gohren. Prag, Reichenacker.

Praktisches Handbuch der Mineralwasser-Fabrikation. E. Gressler. Halle, Fricke.

Sonst und Jetzt in der Chemie. H. Kopp. Braunschweig, Vieweg u. Sohn.

Einleitung in die technische Mikroskopie, nebst mikroskopisch-technischen Untersuchungen. Julius Wiesner. Wien, Braumüller.

Die trockene Destillation des Holzes, und Verarbeitung der durch dieselbe erhaltenen Rohprodukte, &c. Eduard Asmus. Berlin, Springer.

DUTCH PUBLICATIONS.

De scheikundige middelen der Nederlandsche regering tegen de verspreiding der Cholera. G. J. Mulder. Rotterdam, H. A. Kramers.

Inleiding tot de nieuwere Scheikunde. Naar de Engelsch door H. F. B. Hubrecht. Utrecht, Greeven.

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Importancia Practica de Processo Urinologico de Barreswil

na Analyse Chymica das Urinas Diabéticas, etc., etc. Pareira Caldes. Braga, Lusitana.

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PHARMACY.

APPARATUS, ETC.

Platina Vessels. Scheurer Kæstner has made some careful researches on the amount of waste of platinum by the concentration of sulphuric acid in platinum stills. Under favorable circumstances this amounts to about two grammes for every thousand kilogrammes acid made, but under ordinary circumstances it will amount to four or five grammes. He recommends the introduction of a little sulphate of ammonia with each charge, which diminishes the waste greatly. A. J. Ph. xxxix. 32.

A correspondent from the Paris Exposition states that the platinum vessels of Johnson and Mathey are not soldered with gold, as is usual, but that the joints are united by the oxyhydrogen blowpipe, so as to form a solid vessel without joints. This renders them more durable, stronger, and cheaper than those made by the old plan. Ch. N. April. 1867, 182.

Platina-plated copper Vessels are now manufactured by Sy and Wagner, of Berlin, which, according to Dr. Stahlshmidt, are of excellent quality, and may be used with impunity for the concentration of sulphuric acid. J. Prakt. Ch. v. 98, 320.

Professor Redwood recommends platinized copper scale pans. Platinized copper and silver dishes had proved a failure for chemical operations, as it is difficult to ensure and maintain perfect continuity in the thin coating of platinum, which is applied by rolling over the surface of the copper. Ph. J. Trans. viii. 375.

Iron Vessels. Kohlmann recommends that iron vessels, when not in use, be coated with a thin film of paraffine, which will protect them entirely from the influence of laboratory vapors. Ph. C. H. Sept., 1866, 358.

Glass Vessels. S. Gibbons recommends that glass vessels containing substances sensitive to light, such as chlorine water, &c., be covered with some woven fabric of light texture (gauze, tarlatan), and then painted with a solution of bichromate of potassa and gelatine, which, when exposed to light, becomes insoluble, and perfectly protects the contents from the action of light. Ch. C. B. 1866, 1120.

Lime Crucibles, which are so desirable for preventing the introduction of carbon and silicon into metals and alloys, have hitherto been obtained with difficulty of sufficient size. Mr. David Forbes recommends that a clay crucible be filled with common lamp-black by pressing and stamping it well down, then scraping out the centre until a thin coating is left, and polishing the sides with a glass rod. The same process is then repeated with finely powdered caustic lime, when the crucible is ready for use. Ch. N. Jan. 1867, 2.

A cheap Furnace for chemical experiments is proposed and described by a writer in the Scientific American. It is made from an ordinary piece of stove-pipe, lined with clay, and so arranged that a blast can be produced by an ordinary blower. Cast iron and manganese are readily melted in it. Dent. Cos. viii. 55.

Suppository Moulds. Messrs. Bullock & Crenshaw, of Philadelphia, have constructed a new suppository mould, which is described and illustrated in A. J. Ph. xxxix. 121.

Mr. Mackay proposes pipe-clay as a useful and economical substance for forming the moulds.

Weights. Mr. William Crookes gives some information and suggestions in regard to the adjustment of chemical weights, which, as ordinarily found, are exceedingly inaccurate. Ch. N. April, 1867, 191.

Retorts. W. P. Dexter proposes, as a cheap retort for preparing hydrofluosilicic acid, a leaden vessel, provided at the top with a small lead tube inclining upwards, so as to prevent impurities, accidentally thrown up, from contaminating the distillate. To the lead tube a smaller one of platinum is soldered, bent in the form of a quarter-circle, to the end of which an old platinum

crucible is soldered with gold, so as to give it the shape of a pendant bell. The latter is intended to be immersed in water contained in a vessel, the diameter of which does not much exceed that of the crucible. A. J. Ph. xxxviii.

Air Pump. M. Regnault exhibited to the Academy of Sciences of France a new and improved air pump, the invention of M. Deleuil, by which a vacuum of one millimetre, or a pressure of five atmospheres, is readily produced. By increasing the strength of the apparatus, a pressure of 8—10 atmospheres may be attained. Ch. N. April, 1867.

Electric Machine. A new electric machine, invented by Hild, is coming into use for the wholesale production of ozone. A sugar refining firm in White Chappel is setting up one on their premises for the bleaching of sugar. The light and heat produced by this machine is wonderful; it is used in Manchester for photographic purposes. A. D. Cir. xi. 146.

Thermoterion, or heat-retainer, is the name given to quite an ingenious apparatus, which is constructed of a series of concentric metallic vessels, the inner one containing a glass beaker, readily removable, in which the substance to be kept warm is placed. Outside of this is a hot water space; this is again surrounded by an air jacket, which insulates the hot water and obstructs the radiation of heat. Boiling water poured into the beaker was found, at the expiration of ten hours, to have a temperature of 108° F., that of the surrounding air being near 60° F. The apparatus will undoubtedly be found convenient for digestion or slow crystallization. A. D. Circ. xi. 146.

A new Apparatus for Displacement was exhibited by Mr. R. W. Giles at the meeting of the British Conference in 1866, which consists of eight conical percolators, so arranged that the menstruum, as it passes through the first cone, will drop into the second, and so on until it has passed through all the cones, the material being divided among them. Ph. J. Trans. viii. 219.

A new form of Stirring Apparatus for evaporating liquids has been invented by Mr. Reynolds. It is ingenious in its construction, and appears to be well adapted. For description see Ph. J. Trans. viii. 221.

A new Spring Clamp for burettes, &c., invented by Gind'l, is illustrated and described in J. Prakt. Ch. v. 100, p. 441. It possesses the advantage of presenting a smooth, flat surface to the rubber, and equalizes the pressure,—two points very desirable.

An improved apparatus for generating sulphhydric acid is figured and described by B. W. Gibson in Ch. N., May, 1867. It consists essentially of a generator and wash bottle, united (in addition to the ordinary connections) by a siphon, which, by raising or lowering the wash bottle, graduates the flow of acid (contained in the wash bottle), or stops it entirely, thus enabling the operator to generate the gas at will.

An apparatus for the estimation of HS in crude gas has been constructed by Dr. Shilling, and is described and illustrated in Ch. N., March, 1867, 112.

The apparatus used by Prof. Wöhler for demonstrating the inflammability of silicated hydrogen is described in Ch. News, April 12, 1867.

In the same number will be found a description of the apparatus used by the Professor for rendering sensible the great reduction of temperature produced by the evaporation of liquid sulphurous acid, without incommoding the operator.

Apparatus for Specific Gravity. Persoz proposes a new arrangement for taking the specific gravity of solids, which consists of a vessel, the capacity of which is accurately known, and into which the substance to be examined is placed. It is connected by means of a tube and stop-cock with a graduated vessel, containing the liquid in which the specific gravity is to be taken. On opening the stop-cock, the air from the lower vessel passes into the vessel above; and the difference between the capacity of the lower vessel and the amount of air in the upper one, will give the bulk of the substance under examination, from which the specific gravity is readily calculated. Ch. C. B. 1866, 542.

A simple Dialyser is constructed by Mohr, in the shape of an ordinary plaited filter, from strong parchment paper. It is placed in an appropriate vessel (*i. e.*, beaker glass), and the only precaution necessary is to pour the liquid outside and inside the

dialyser at about the same height. Described and illustrated in N. Rep. xvi. 439.

Marsh's Apparatus is improved by F. Mohr, by appending a small gasometer. The advantage claimed is, that the gas becomes cooled and all impurities mechanically carried over can subside, thus insuring a steady flame and a brilliant film when As is present. The apparatus is illustrated and described in N. Rep. xvi. 436.

An *Apparatus* for generating chlorine has been constructed by H. Sanger which is regarded as highly convenient for generating the gas. It consists of a bottle with three necks, two of which project from the sides, and are provided with perforated stoppers, so that the gas can be turned on or off after the connections are made. A Woulf's bottle can be made to answer the same purpose. For illustration and description see Arch. Ph. clxxix. 45.

PROCESSES, &c.

Crystallization. Acting upon the idea that many insoluble compounds, usually found amorphous, can be crystallized if their formation is gradual instead of instantaneous, *M. Fremy* has succeeded in crystallizing a number of compounds, among which are sulphate of baryta and strontia, magnesia, &c. He formed some by introducing the materials into liquids of different densities containing sugar, gum, gelatine, &c.; others by using wooden or unglazed vessels. Ch. N. Nov. 1866.

Mr. Wm. Skey gives preliminary notice of the formation and crystallization of a long list of ammonio-salts of the metals in Ch. N. Dec. 1866, p. 265. The general principle of his method consists in the removal of the water from their solution, without decomposing the salt, and he attains his object by the aid of alcohol, which, having a stronger affinity for the water than the salt, permits it to crystallize. He has thus prepared ammonio-salts of Cu, Co, Ni, Ag and Zn, in combination with Ta, Os, PO_5 , B_3O_3 , SO_2 , PO, and Cy.

Powdering. Mr. T. J. Covell of Brooklyn, contributes some interesting statistics on drug powdering in A. J. Ph. xxxix. 114.

Distillation. A process has been patented in England by which spirits of turpentine, resin, pyroligneous acid, gas, wood-naphtha and charcoal, are obtained by one operation from fire-wood. The wood is subjected to the action of super-heated steam and subsequently to direct heat, in a partial vacuum, in a manner described in detail in the letters-patent. Ch. N. Aug. 1866. A. J. Ph. xxxviii. 530.

Extraction of Sugar from Beets. Roberts has patented a process for the manufacture of beet sugar (in Austria), which is calculated to revolutionize the process of its manufacture. The beets, after proper comminution, are subjected to a series of washings in a system of 6—8 vats, so placed that the liquid from one can be drawn off into the other. 200 tons of beets are thus treated and thoroughly exhausted in 24 hours, forming solutions in the most concentrated form at an enormous saving of time, fuel and sugar. A. D. Cir. xi. 67.

Dialysis. Mr. Thos. Graham finds that a film of caoutchouc, while it is impervious to air as a gas, has the power of liquifying, in its pores, the individual gases of which air is composed, which will then readily penetrate the membrane, and may be collected in a vacuum as gases. They are, however, not equally condensed and absorbed by the rubber, oxygen penetrating $2\frac{1}{2}$ times more rapidly than nitrogen; hence air collected by this process will act intermediate between pure oxygen and ordinary atmospheric air, when brought in contact with a glowing combustible object. Ch. N. Aug. 1866. A. J. Ph. xxxviii. 510.

Fermentation. According to Naunyn, the addition of benzole to substances undergoing fermentation retards the process remarkably, and in some cases prevents it entirely. Yeast globules, which had been exposed to its influence for some time, were found separated, very small and in most cases had contracted to small granular lumps. Ph. Zeitschr. Russ. July 1866, 181.

Bechamp finds that the action of chalk during the lactic and butyric fermentation is not confined to retaining the neutrality of the mixture, but that it contains minute microscopic organisms which must be regarded as most powerful ferments, and act as

such. By the action of native chalk on solutions of cane-sugar in the presence of a fraction of creasote, he has obtained alcohol, and butyric and acetic acids. He found the chalk to contain 7.17 per cent. of organic substances. Artificial chalk has no such action. Ch. C. B. 1866, 988.

Bleaching. Hypochlorite of magnesia is strongly recommended by Bolley and Jokisch for bleaching delicate tissues, and is decidedly preferable to hypochlorite of lime, as it is more readily decomposed, and the liberated magnesia has no action on the fabric. Ch. N., Mar., 1867, 150.

M. Picciotto states that gum may be bleached by treating a solution of 6 parts gum in 15 parts water with recently precipitated alumina, which fixes the coloring matter completely. The solution of gum may be strained off, is colorless and yields the pure gum on careful evaporation. A. J. Ph. xxxix. 219.

Permanganate of soda is, according to Tessie du Mothay and Rousseau, an excellent agent for bleaching fabrics of all kinds by the cold process. The fabric is dipped into the solution of permanganate and then subjected to the action of sulphurous acid. By repeating the process several times, it is bleached perfectly white, without injury to its texture or fibres. A. D. Cir. x. 233.

- *Dyeing.* Mr. Leuchs avails himself of the property that pectine has in converting insoluble blue into soluble white indigo, and uses turnips as its source. The sliced turnips are suspended in the indigo vat by means of an iron cage, and soon render the solution colorless. The residue of the turnips, amounting to about 5 per cent., answer well for paper making. Ch. C. B.

Fuel, &c. Capt. Shpakooski has invented a lamp by means of which oil of turpentine can be burned with great economy. By a peculiar arrangement, the oil is burned in the form of spray. The flame has a temperature of 1040° R. = 1300° C. He applies it to the melting of steel and copper, to crucible operations, &c., and by application of a number of pulverizers (spray producers) uses it for the generation of steam for motive power. A. D. Cir.

Mr. Schöning has contrived a new arrangement by means of

which intense heat, sufficient to melt iron, can be obtained from ordinary gas. A copper tube, carefully pierced, is the chief instrument in securing these results. A piece of iron weighing 400 gram. was melted in 20 minutes. Sc. Am.

The use of petroleum as fuel is likely to become very extensive, but has a great drawback in the production of a large amount of black smoke and consequent offensiveness and waste. The admixture of superheated steam has been applied with beneficial results, causing the smoke instantly to disappear. Dent. Cos. viii. 167.

If a platinum crucible be heated to redness over gas, the flame turned off and the redness of the crucible allowed to disappear, the gas, when turned on again, will cause the crucible to become red hot without producing flame, and this operation may be kept up without interruption for any length of time. This phenomenon will doubtless find useful application in many operations. Ph. C. H. vii. 395.

Disinfectants. An excellent paper on the action of oxygen, sulphurous acid, carbolic acid, heat and cold, will be found in A. D. Cir. x. 185, from N. B. Review. The author advocates several original theories relative to the process by which so-called disinfectants prove disinfectants.

According to Nager, chlorinated lime is the most reliable disinfectant, equalled only by the permanganates. Next to these the various sulphites are considered of value. Carbolic acid acts simply as an antiseptic, and cannot properly be classed among disinfectants. The metallic sulphates, chlorides, &c., are only deodorizers of matter undergoing putrefaction, and therefore least advantageous in destroying miasmatic emanations. Ph. C. H. July, 1866.

Dr. Clemens, of Frankfort-a-M., recommends for disinfection and for the prevention of cholera, an alcoholic solution of chloride of copper, and claims that the chloride is the most prompt and effectual disinfective medium known. It is used by burning the solution in an ordinary spirit lamp. To two pounds spirit, $\frac{1}{2}$ oz. chloroform and $\frac{1}{4}$ oz. chloride is added. A. D. Cir. x. 234.

For some valuable information on the use of sulphurous acid as a disinfectant, as suggested by Dr. Dewar, who has extensively experimented on the subject, see Ph. J. Trans. Aug. 1866. A. J. Ph. xxxviii. 468.

Dr. Lethly recommends, for the disinfection of church vaults and other infected places, such as sick chambers, &c., *chlorine*; as of a secondary value, *chlorinated* or *carbolate* of lime; for disinfecting privies, drains, sinks and sewers, *carbolic acid*; for the disinfection of fæces, *chloride of zinc* or *iron*; for drinking water, *permanganate of potassa*; for bedding, wearing apparel, &c., exposure to a temperature of 260 to 300° F. Ch. N. Dec. 7, 1866.

Mr. Wm. Crookes makes some valuable remarks on the subject of disinfection in connection with the cattle plague, which are republished in A. J. Ph.

Purification of Water. Mr. Thos. Spencer proposes the magnetic oxide of iron for the purification of river and other waters containing organic impurities. He proposes to prepare the oxide cheaply by heating hæmatite, or red oxide of iron ore, with sawdust. The magnetic oxide is obtained in a granular state, and forms a very suitable filtering medium. Water filtered through a layer of 3 to 4 inches thick will not destroy the pink tint given it by permanganate of potassa. A. D. Cir. x. 122.

A process for rendering sea-water drinkable by chemical means has been devised by F. Braun. The water is filtered and shaken with sulphate of protoxide of mercury ($\text{Hg}=200$) which separates Br and Cl; it is then again filtered, and shaken with an excess of BaO CO_2 , which separates SO_3 and CaO and MgO as carbonates. The careful addition of metantimoniate of potassa converts the soda remaining into insoluble metantimoniate of soda, and carbonate of potassa alone remains, which is separated by Ta, or better by hydrofluosilicic acid. Ch. C. B. 1867, 241.

Organic Elementary Analysis. Stein describes his process for perfectly removing water from hygroscopic organic substances before subjecting them to elementary analysis. J. prakt. Ch. v. 100, 55.

The substance to be analysed is preferably dried in a stream

of HO or CO₂. Prof. Rochleder describes his method and apparatus used for this purpose, by which he obtained admirable results. Ch. C. B. 1867, 323.

Frankland has shown, some years ago, that in the analysis of nitrogenized organic bodies a portion of the nitrogen will be eliminated in the form of nitric oxide, thus giving rise to errors. E. Thorpe has instituted a number of experiments in order to determine how far this affects the accuracy of the analysis, and finds that the per centage of NO₂ is so small as not materially to affect the result, when the ordinary (Dumas') method is pursued. The gases should be passed rapidly and the temperature high. J. Ch. Soc. Ch. C. B. 1867, 205.

The determination of chlorine in organic substances is, according to C. M. Warren, readily executed by a process similar to that which he gave for sulphur (Zeitschr. Anal. Ch. iii. 272.) The chlorine is taken up by oxide of copper, from which it is determined by dissolving in dilute NO₂ and titration with AgO NO₂. Zeitsch. Anal. Ch. 1866, 480.

Analysis of Ashes. E. Reichard makes some practical remarks on the analysis of ashes, which embrace the production and subsequent determination of constituents. A careful perusal will amply repay the student, and materially aid in the determination of the inorganic constituents of plants. Ch. C. B. 1867, 278.

The application of the blow-pipe to the quantitative determination or assay of certain metals, is the subject of an interesting paper by Mr. D. Forbes. It runs through several numbers of Ch. News, 1867, and will repay attentive study.

Quantitative determination of volatile oils in alcoholic solution. Hager adds 6 volumes of a 16 per cent. solution of sulphate of soda to 1 volume of the alcoholic solution, which separates the oil. An accurately weighed piece of paraffine (at least 3 to 4 times the weight of the estimated quantity of oil) is then introduced, allowed to stand half a day, and then carefully heated; the paraffine mixes with the oil and on cooling will retain it. Ph. C. H. Viertelj. Ph. xvi. 284.

A new method for the determination of the sp. gr. of gases and

vapors has been devised by R. Bunsen, which, with convenient and simple arrangement, insures the utmost accuracy. It is illustrated and described in Ann. Ch. Pharm. cxli. 273.

Rusty Iron is said to be readily cleansed by rubbing it briskly with beeswax and a woollen cloth. Polytech. Jour.

Fusing Iron with Brass. If a large proportion of copper is used in brass castings, iron may be cast to it and perfectly united. J. App. Chemistry.

A metal that expands readily on cooling is obtained by melting together 9 p. lead, 2 p. antimony and 1 p. bismuth. This metal is useful in filling small defects in castings. Am. Artisan.

Tarnished Silver, according to *Rossler*, is best cleansed with a solution of cyanide of potassium. As soon as the tarnish is removed, which occurs rapidly, the silver should be washed in pure water. Arch. Ph. cxxvii. 253.

Coloring Zinc by chemical means is done, according to Prof. Böttger, by introducing perfectly clean zinc into a mixture of 3 p. tartrate of copper, 4 p. caustic soda and 48 p. distilled water. By allowing it to remain in the solution (at a temperature of $+10^{\circ}$ C.) two minutes it becomes violet; three minutes, dark blue; four and a half minutes, green; six and a half minutes, golden yellow; eight and a half minutes, purple. The zinc is removed rapidly, as soon as the desired color is obtained, and washed at once in pure water. Ch. C. B.

Sodium-amalgam Process. Mr. Wm. Crookes, in a paper on the discovery of this process, states his claims as to originality in the discovery. He only asks that the credit be accorded him that he has made the discovery independent of Prof. Wurtz. Ch. N. 1866.

The extraction of gold from vein stone by this process has increased the yield of the Narragansett Mills, Colorado, about 30 per cent. A. D. Cir. x. 227.

A series of experiments is in progress, under the superintendence of Prof. Silliman, with regard to the value of sodium amalgam in the extraction of auriferous ores. So far the experiments have been very successful, but the details are not yet published. A. D. Cir. x. 258.

Polishing Powder, of excellent quality for fine metals and optical glasses, is obtained, according to Dr. Vogel, by calcining oxalate of iron.

Glass Engraving. A new process has been patented by C. C. Stremme, of Austin, Texas, which consists in forming the design on ground glass with glue or other strongly adhesive and contractile substance, which, in contracting, detaches laminæ of irregular shape and thickness from the surface, leaving the design in a style resembling frost-work. A. D. Cir. xi. 147.

Glass Drilling. Dr. G. Lunge uses dil. sulph. acid instead of oil of turpentine to moisten the drilling instruments for glass, which not only increases the efficacy of drilling, but the tools and files are less rapidly destroyed. A. D. Cir. xi. 147.

Application of Insoluble Silicates. Guerin proposes to cover surfaces with insoluble silicate of lime by covering them with creamy slacked lime or white-wash, allowing it to dry and afterwards applying a solution of silicate of potassa. The process is similar to that known as Ransom's. Sci. Am.

Test Papers. Processes are given in A. D. Cir. xi 87, for preparing test paper from Brazil wood, red cabbage, dahlia, elderberries, indigo, litmus, iodide of potassium, starch, sugar of lead, rose leaves, manganese, rhubarb and turmeric.

Putty for Metals. Starch and chloride of zinc form a good putty for metals; it soon hardens and will last for months. A. D. Cir. xi.

Cement for fixing brass on lamps, etc., may be formed with alum, plaster of Paris and water. It forms a very hard composition.

A Lute which hardens rapidly and remains unaffected by fire or water is made, according to Jüngmann, by kneading together 2 parts finely sifted iron filings and 1 part finely powdered clay with strong vinegar, until a homogeneous, plastic mass is obtained. It must be used as soon as made, as it cannot be used again when once dry. Ch. C. B., 1866, 560.

A White Paste, which will adhere to any substance, is prepared by dissolving $2\frac{1}{2}$ oz. gum arabic in 2 qts. water and stirring in 1 lb. wheat flour until of a pasty consistence. It is then

heated, solutions of 720 grs. of alum and 720 grs. sugar of lead added, and well stirred until it shows signs of ebullition, when it must be removed from fire. A. D. Cir.

A Sizing for woven fabrics has been patented by Trepp, in England. It consists of 100 p. glycerine, 20° B., 1 p. sal soda, 1 p. gelatine and 0.100 p. alum and borax.

Paper and Alcohol are now manufactured on a large scale from wood by a company in Geneva, Switzerland, by a method which is said to be an improvement on the older processes for the same purpose. A. D. Cir. xi. 67.

A new Source of Alcohol and Illuminating Gas has been made available by a company of scientific men in Austria, from the waste products of coal oil. The *alcohol* is obtained from the oil waste, and the *gas*, which is said to have four times the illuminating power of ordinary gas, is prepared from the distillery waste. Both can be obtained more economically than by any other process. A. D. Cir. xi. 161.

Artificial Tannin. Mr. Wm. Skey has observed that when bituminous coal or lignite is heated with nitric acid, a dark brown substance is left on evaporation, of which a large proportion is soluble in water. The portion thus dissolved has a bitter and somewhat astringent taste, and is readily precipitated by gelatine and albumen from its aqueous solution. It is soluble in alcohol, ether and caustic lyes, and in sulphuric acid with a red color. Ch. News, Nov., 1866.

Artificial Ivory is prepared by Dupré from a paste of papier maché and gelatine, which, according to "*Les Mondes*," is durable, hard and elastic, and may be struck with a hammer without injury. It is likely to come into extensive use in the arts, as the finest and most complicated mouldings for ceilings and capitals for columns can be produced in any color. Dent. Cir. viii. 166.

Utilization of Brine from Pickled Meat. A. Whitelaw, of Glasgow, proposes to separate the nutritive portion of brine from pickled meat, from the salt which is held in solution, by dialysis. The brine thus treated can in most cases be converted into a nutritive soup.

CAUTERIES.

Moza. Bretonneau prepares this cautery by mixing 40 parts charcoal, 3 p. nitrate of potassa and 10 p. g. tragacanth with 48 p. water to form a mass, which is rolled out and divided into little sticks 10 c. m. in length. When dry, they will burn readily without scintillation, produce very little ashes and do not break readily. Ph. C. H., 1866. Ph. Zeit. Rus. v. 500.

Chloride of Zinc Cauterizing Paste, used in the London hospitals with success in the treatment of cancer, is prepared with the following ingredients: chlor. zinc 12 p., chlor. antimony 8 p., pulv. starch 4 p., glycerine q. s. J. Ph. et Chim., 1867. N. Rep. xvi. 251.

CERATES, OINTMENTS, ETC.

Benzoinated Lard. Mr. Thos. Doliber reported on benzoinated lard, and recommends that it be made with tinct. benzoin (containing 6 oz. benzoin in the pint), in the proportion of half a fluid-ounce to 16 oz. lard. Proc. Am. Ph. A., 1866, 224.

Benzoinated Ointments. Mr. Chas. Eberle recommends the addition of six drops of balsam of Peru to dark ointments, or three drops to those of a light hue, and states that in his experience it will preserve the ointment indefinitely. The balsam should be added at the point at which the cooling fluid will suspend it on its surface, as otherwise it will not mix in well. Proc. Alumni Assoc., 1867, 18.

Judkin's Ointment, a preparation used extensively throughout the South and West, is prepared by boiling 1 lb. linseed oil in an earthen vessel, adding gradually $\frac{1}{4}$ lb. red lead, and finally stirring in half a drachm spts. of turpentine and one drachm sugar of lead. A. D. Cir. xi. 87.

Camphor Ice. Mr. W. C. Bakes recommends the following formula: powd. camphor 2 oz., white wax 4 oz., oil Eng. lavender 2 drachms, benzoinated suet 1 lb.; melt the suet and wax together and, when nearly cool, add the other ingredients and pour into moulds of convenient shape and size.

In this connection Mr. B. describes a camphor ice tray suitable for this purpose. A. J. Ph. xxxix. 65.

Medicated Cocoa Butter. Mr. Ferris Bringham recommends the following preparation of cocoa butter for chapped hands and lips: Take of yellow wax 4 oz., cocoa butter 28 oz., bals. Peru 1 drachm, benzoic acid 1 drachm; melt together, strain and perfume with oils of rose, bergamot and bitter almonds. When nearly cool add 1 oz. glycerine. To be moulded in a camphor ice tray. Proc. Alumni Assoc., 1867, 17.

Mercurial Ointment. Mr. J. H. Hart prepares mercurial ointment by exposing the mercury to a freezing mixture in the mortar in which it is to be triturated until the temperature has fallen to 32° F. or below, and then immediately triturates it in the cold mortar with its weight of stearine, adding, when nearly complete, 4 drachms of saturated tinct. benzoin. Under favorable circumstances 2 lbs. ointment are readily prepared in fifteen minutes. A. J. Ph. xxxix. 332.

Plasma. Mr. G. F. Schacht recommends the following as an improvement on his original formula, published in 1858: Take of starch 70 grs., glycerine 1 fluidounce; mix the ingredients and heat to 240° F., constantly stirring. When large quantities are prepared he recommends that the starch be triturated with 1-12th the glycerine, the balance heated to about 260° F. and then stirred into the mixture previously made. His experience contradicts the statement that plasma is apt to mould by keeping. Ch. N., Oct., 1866. A. J. Ph. xxxviii. 554.

DISTILLED WATER.

Distilled Water. Dr. A. Vogel has noticed that water, distilled from iron kettles, into which chloride of barium has been introduced to prevent incrustation, contained chlorhydric acid. The source of the acid is chloride of magnesium, which is formed by the decomposition of a magnesia salt contained in the water and the chloride of barium. Che. C. B., 1866, 557.

ELIXIRS.

Elixir of Bismuth has lately come in demand. Mr. W. C. Bakes proposes that it be prepared by the addition of 4 fluidounces of Curaçoa cordial to 12 fluidounces solution of ammonio-citrate of bismuth. A. J. Ph. xxxix.

Elixir of Calisaya, Iron and Bismuth. The following formula is given in A. D. Cir. xi. 85: Chinoidin gr. ij, quiniæ sulph. aa 40 grs., ferri pyrophosph. (U. S. P.), bismuthi et ammon. citratis aa 16 grs., aquæ f3 ij, elixir. Curaçoa f3 vj.

Ferrated Elixir of Gentian is recommended by Mr. William B. Thompson as a substitute for the various ferrated bitters now in use. Dissolve 256 grs. pyrophosph. iron in 2 fluidounces of boiling water, add 2 fluidounces fld. ext. gentian, 6 fluidounces Curaçoa cordial and sufficient sherry wine to make the measure up to a pint. A. J. Ph. xxxix. 306.

Elixir of Iodide of Iron and Quinine is prepared with the following ingredients: iodide of iron and quinia (Merk's) 80 grs., sugar 12 oz., water 3 fld. oz., elixir Curaçoa 5 fluidounces. A. D. Cir. xi. 85.

Iodo-ferrophosphorated Elixir of Horse-Radish is prepared, according to E. Fougere, by macerating 10 kilo. each of fresh scurvy grass and water cress, 0.5 kilo. orange peel, 0.2 kilo. angelica root, 0.1 kilo. cinnam. buds, 0.1 kilo. cardamom, and 0.1 kilo. mace in 40 litres white wine for 24 hours and distilling 10 litres.

10 kilo. fresh horse-radish is pounded intimately with 20 kilo. sugar, sufficient water added to dissolve, and, after adding the above distillate, brought to 82 litres.

420 gram. iodine is now dissolved in 10 litres simple syrup by gentle heat, and occasional agitation until the syrup becomes colorless, and added to above syrup, to which is also added a solution of 840 gram. pyroph. iron in 17 litres water, and 6 litres of 95 per cent. alcohol. The dose is a tablespoonful, containing 2 grains iodine and 4 grs. pyroph. iron. It should be kept excluded from light. A. J. Ph. xxxix. 312.

EXTRACTS, &C.

Extracts. Dr. A. Vogel, Jr., has observed that the yield of extracts is increased remarkably if the substance to be extracted is thoroughly moistened with the menstruum and then permitted to stand for several days previous to displacement. N. Rept. xvi. 70.

Powdered Narcotic Extracts. Dallwig recommends dextrine as a substitute for sugar for bringing the dried extracts to their original weight, which, rendering them equally soluble, will not cause them to attract moisture. Ph. Zeitschr. Russ., 1867.

Oleo-resins. Mr. H. N. Rittenhouse recommends the use of $1\frac{1}{2}$ oz. of ether for each ounce of drug treated, followed by sufficient benzine to make the amount of percolate equal to the amount of ether employed, as both economical and satisfactory, in the preparation of oleo-resins. Proc. A. Ph. A., 1866, p. 208.

Extract. Colocynth. Alcohol. Prof. Procter has written a paper on this subject, with special reference to ext. colocynth. comp. The largest yield of alcoholic extract obtained by him was 9.6 per cent., results which differ materially from those obtained by Dr. E. R. Squibb, who, in the course of five years, operated on 9,951 lb. colocynth and obtained an average yield of 13.56 per cent. The highest yield was 16.03 per cent. and the lowest 11.3 per cent. A. J. Ph. xxxix. 17.

Liebig's Extract of Meat. Liebig, in a communication to Pharm. J. and Trans., gives some information in regard to the extracts of meat, manufactured according to his process at Fray Bentos. The variance in color, observed in different samples of the extract, is owing to the source: that from the meat of oxen being much darker than that from cows' meat. The meat of animals under 4 years old is not fit for preparing the extract. Tannic acid will produce a precipitate with it, which is however not due to gelatine, but to a portion of the juice which can only be distinguished from gelatine by not possessing the property of gelatinizing. The extract contains no chloride of sodium. Ch. News, 1866, ii. 290.

Essence of Beef. Mr. Ebert made some statement before the Association in reference to the essence of beef manufactured by Tourtelot Bros., of Chicago. See Proc. A. Ph. A., 1866, p. 65.

Guffroy's Cod Liver Oil Extract. An account of the therapeutic value and composition of this extract is given in A. D. Cir. xi. 138. The dragees prepared with this extract are claimed to represent all the active properties of the best cod liver oil, over which they possess the advantage of not producing its nauseating effects.

FLUID EXTRACTS.

Fluid Extracts. S. W. Gillespie publishes a paper in A. D. Cir. (x. 249) in which he recommends the use of a mixture of 14 ounces of alcohol, 95 per cent., and 16 ounces of water for the extraction of the drug intended for fluid extract: 12 oz. is to be drawn off, and the drug is then to be exhausted with water. The aqueous percolate is to be evaporated to 2 ounces, 2 ounces of alcohol added and the mixture then added to reserved portion.

(As the author regards it absurd that he should be compelled to follow the directions of the U. S. Pharm., it is suggested that he has not substantiated that by his formula, which, perhaps applicable in isolated cases, it would be *very absurd* to adopt as a formula for all fluid extracts, as is implied by him.)

Fluid Extract of Buchu. Dr. E. R. Squibb, as chairman of the Committee on the Pharmacopœia, reported an improved process for the preparation of this fluid extract. See Proc. A. Ph. A., 1866.

Fluid Extract of Cinchona. Mr. J. T. Walker recommends the following process as excellent for obtaining a clear and permanent fluid extract, representing the full activity of cinchona. Exhaust 8 oz. of bark with dil. alcohol, reserving the first 12 ounces. Mix the balance of the percolate with 6 fluidounces of simple syrup and 4 fluidounces of glycerine, evaporate to 12 fluidounces, add reserved portion and cautiously evaporate to 16 fluidounces. A. J. Ph. xxxviii. 411.

Fluid Extract of Ergot. Mumbray recommends to prepare this fluid extract by displacement with water, and to preserve it with sufficient alcohol to make its alcoholic strength 20 per cent. Ph. Journ. and Trans. viii. 463.

Glycerole of Sumach. Bakes prepares a permanent preparation from sumach berries by macerating 16 oz. of the fruit with 3 pints of boiling water for an hour, expressing, and treating the drug in the same manner with 2 additional pints of water. The mixed infusion is evaporated to 8 fluidounces and q. s. glycerine added to make the liquid measure a pint. It possesses the refrigerant and astringent properties of the berries in a pleasant and concentrated form. A. J. Ph. xxxix. 120.

HONEYES.

Purification of Crude Honey. Hengel recommends that 25 lbs. honey be diluted with 12 lbs. water, boiled, skimmed and 10 dram. of finely pulverized carb. magnesia added. After boiling a few minutes, it is strained through close flannel and may then be evaporated to the proper consistence. The magnesia has for its object the neutralization of the acid and precipitation of the albuminous principles of honey, and answers the purpose admirably. Ph. Zeitschr. Russ., 1866.

Frederking recommends that crude honey be boiled with water in proportions of 5 honey to 4 water, filtered and subsequently evaporated to proper consistence. Honey is thus purified most completely. Ph. Zeitschr. Russ. 1866, 381.

LINIMENTS, &c.

Linimentum Aconiti and *Linimentum Belladonnæ* of the British Pharmacopœia are criticised by Mr. A. F. Haselden, who states that the amount of alcohol directed is not sufficient for the complete exhaustion of the materials, and that, even if the liniments are strong enough for practical results, a uniform preparation is not likely to be obtained as made by different operators. Pharm. J. and Trans. viii. 17.

Iodized Opodeldoc is prepared by Mr. W. C. Bakes by mixing a solution of 8 oz. iodide of potass. in 2 pints alcohol, 30° B., with a hot solution of 14 oz. animal soap in 2 pints alcohol, 30° B., and adding two drams oil of garden lavender to flavor. A. J. Ph. xxxix. 120.

Liquid Soap is recommended by Dr. A. Vogel, Jr., as a vehicle for many medicinal substances, to be applied locally, and it possesses as such many advantages. He prepares it by boiling together 100 p. glycerine, 32 p. oleine and 17 p. concentrated solution of potassa, to which is subsequently added 3.5 p. carb. potass. dissolved in a small quantity of water; it may be perfumed with nitro-benzole. Thus prepared it furnishes a soap of the consistence of honey, which on standing a few days will settle perfectly clear, forming a slight deposit, from which it is readily separated by decantation. N. Rep. xvi. 65.

Glyconine. Mr. Edmond Sichel proposes to form this substance by triturating together 4 p. of the yolk of eggs, and 5 p. glycerine. It forms an unctuous liquid of the consistence of honey, which is recommended for local application and especially in the treatment of erysipelas and other cutaneous diseases, as it covers the surface with a soothing, non-irritant varnish. Jour. de Ph. A. D. Cir. xi. 57.

Liquor Carbonis detergens, a new form of antiseptic for local application, is said to be an alcoholic solution of coal tar, containing probably carbolic acid and other acids, with dark tarry matter. It forms a permanent emulsion with water. A. D. Cir. xi. 135.

MIXTURES, EMULSIONS, &C.

Emulsion of Tar. M. Jeannel proposes an emulsion of tar prepared by rubbing together 1 p. crystallized carb. soda and 1 p. wood tar. After thorough trituration, the mixture is introduced into a flask containing 100 p. of water, shaken vigorously for several minutes and filtered. An emulsion is formed which mixes with water in all proportions.

Emulsion of Cod Liver Oil. Dr. Rowland disguises the taste of cod liver oil by the following formula: 100 p. cod liver oil, 60 p. alcohol, sp. gr. 0.9396, and 3 p. ess. peppermint. It may be given in tablespoon doses.

Musk Mixture. Lailler recommends that the musk be rubbed with a few drops of boiling water, and that subsequently the proper amount of hot water be added, as the best method of obtaining the full strength of the musk. On cooling, a portion of the musk is again deposited, but in a very minutely divided form, so that it is readily mixed again by agitation. This procedure obviates the necessity of suspending the musk with gums. Ph. Zeitschr. Rus. vi. 56.

Crème de Bismuth. The following formula is recommended by Dr. Boisliniere: 2½ drams subnitrate of bismuth and 2 grains of carmine are rubbed with 2 ounces of syr. strawberries and 2 ounces mucilage of gum. It is flavored with 30 drops ess. of vanilla and taken in teaspoonful doses.

Eau de Pagliari. Mr. Meyer proposes the following formula

as a substitute for the original receipt, which he regards as empirical: Dissolve 90 grs. benzoin in 225 grs. alcohol of 90 p. c.; add 10 fluidounces water and 450 grs. alum; mix and boil until the liquid becomes clear; filter after cooling. A. J. Ph. xxxix. 220.

*Drops for the prevention of Cholera.** Dr. Levisseur recommends a mixture of tinct. arom. acid. ʒi; æther. acet. ʒij; spts. vini rectif ʒi; camphor, quant. solv. potest. In time of cholera 2 to 4 drops to be taken on sugar at the least sign of illness. Ph. C. H. Aug. 1866.

Dr. Honigsberger, of Calcutta, has employed, with success, a mixture consisting of 1 ounce tinct. quassia, $\frac{1}{2}$ dram. pulv. cloves and 15 grs. crystallized protosulph. iron, for vaccinating as a preventive of cholera. Dr. Hager, who has tried it on over 600 persons, concludes that it may be valuable and is worthy of trial. It is applied in the same manner as vaccine virus. Ibid.

Ferrated Cod Liver Oil. A Ricker proposes to prepare ferrated cod liver oil, by converting 100 p. cod liver oil with 70 p. caustic soda lye, sp. gr. 1.38, into a soap and precipitating this soap with 100 p. solution of chlor. sodium of 25 p. c.; 60 p. of this soap is dissolved in 500 p. dist. water and precipitated with a solution of 15 p. protosulphate of iron in 100 p. water; 30 p. of the ferruginous soap thus produced is dissolved in 500 p. cod liver oil in a water bath, which produces a preparation of which 1 ounce represents about 1 grain of metallic iron. The process is rapidly and readily executed. N. Jahrb. Ph. xxvi. 158.

Iodo-ferrated Cod Liver Oil is prepared by Sinimberghi according to the following process: 30 gram. pure light colored cod liver oil is mixed with 12 gram. ether; one third of this is added to 6.5 gram. pure protosulph. iron, 5.15 iodide of potassium, and a small quantity of reduced iron. It is then rubbed well together, one third of 970 gram. pure cod liver oil added, and the mixture introduced into a bottle, which it accurately fills, and well shaken. The precipitate is allowed to subside, the clear oil decanted, and then treated in the same manner with the 2d and 3d portions of oil and ether, and of pure oil. The decanted oils are mixed, allowed to stand 10 days and filtered.

The material must be perfectly pure to insure success, and a preparation is then produced which contains 4 grs. Fe I in the fluidounce. Ph. J. Trans. viii. 277.

PILLS, LOZENGES, &C.

Coating Pills. Mr. Symes, of Liverpool, coats pills by shaking them on the lid of a gallipot with a solution of 1 p. bals. tolu in 4 p. ether, and subsequently with a little French chalk, after which they are allowed to dry. A. D. Cir. xi. 87.

Sugar-Coating Pills. Henry C. Archibald describes the method pursued by manufacturers in sugar-coating pills and granules. A. J. Ph. xxxix. 170.

Prof. Parrish publishes a process for preparing sugar-coated pills, which is entirely novel, but only applicable on a large scale. Ibid—p. 12.

Lozenge cutting. Mr. W. Turner gives some practical hints on lozenge cutting in A. J. Ph. xxxix. 206.

Pil. Copaibæ. It is a familiar fact that some samples of balsam of undoubted purity, will not combine with magnesia to form a pill mass. Heretofore this phenomenon has been attributed to the presence of an excess of vol. oil; but Roussin's investigations prove this to be erroneous. He gives as the true cause the absence of water of hydration in the balsam or magnesia or in both. The copaiba resin will only combine in the presence of a certain amount of water; he therefore recommends that the balsam be hydrated by shaking it with one-twentieth water, and allowing it to stand in a moderately warm place, so that the excess of water may separate. It will then invariably combine with one-sixteenth magnesia and form a pill mass. Viertelj. Ph. 1866. Ph. Zeitschr. Russ. v. 497.

Copaine Mège de Jozequ. These are oval sugar-coated pills, generally colored, constituting a new specialty in Parisian pharmacy. They are prepared from balsam copaiva, treated with conc. NO_3 , as long as effervescence takes place, and then thoroughly washed with water to remove acid. One part of balsam thus treated is mixed with one-sixteenth calc. magnesia, one-tenth pulv. cubebæ and one-tenth bicarbonate soda, and by the

aid of mucilage is formed into oval pills, which are subsequently coated with sugar. Ph. C. H. vii. 274.

Pills of Protocarbonate of Iron. Frederking proposes to prepare these pills by forming a mass with $2\frac{1}{2}$ drams pure protosulphate iron, 4 scruples carb. potass. and sufficient succ. liquirit. to form 120 pills. This forms an excellent mass, but the pills become hard very soon.

The following formula furnishes a pill which is not so liable to turn hard: G. acaciæ $\frac{1}{2}$ dram, succ. liquirit. $\frac{1}{2}$ dram, glycerine $\frac{1}{2}$ dram, carb. potass. 4 scruples, protosulph. iron $2\frac{1}{2}$ drams, pulv. rad. althææ q. s. for 120 pills. Each pill contains $\frac{1}{2}$ gr. proto-carb. iron. Ph. Zeitschr. Rus. v. 176.

Pills of Iodide of Iron. Gross proposes the following formula for a permanent pill of iodide of iron: Triturate 40 grs. of iodine with 10 grs. of iron (reduced) until reduced to fine powder; then add 15 drops of glycerine, and triturate until iodine fumes cease to be given off and the mixture assumes a green color; add 20 grs. sugar, 10 grs. pulv. g. acacia, and sufficient pulv. althæa to form a proper mass, which divide into 50 pills. Roll them in pulv. iron, and then coat with tolu. A. J. Ph. xxxix. 183.

Frederking proposes the following formula, which furnishes pills that do not decompose or become hard very soon: Iodide potass. 2 drams, g. acacia $\frac{1}{2}$ dram; triturate together and add pure protosulph. iron 5 scruples, glycerine $\frac{1}{2}$ dram, pulv. althæa, succ. liquirit., aa q. s. to form 160 pills, each of which contains $\frac{1}{2}$ gr. iodide iron.

Capsules of Saccharate of Iron. A preparation of this name is described in Ph. C. H. Nov. 1866, 417, and is noted in order to draw attention to a new soluble compound of oxide of iron. The capsules weigh about 32 grs. and contain 16—17 grains of liquid saccharate of iron, which is entirely soluble in water, and on analysis was found to contain 0.66 per cent. of oxide of iron, besides sugar, alcohol, water and a trace of HCl.

Pilulæ Metallorum et Amararum. Dr. Humphrey Peake has used pills of the following composition, with great advantage, in the treatment of intermittent fever, and all maladies arising from a deficiency in blood, and recommends them highly: Quiniæ

sulph. ʒi, ferri redacti ʒiss, strychniæ, acidi arseniosi, aa grs. iij, conf. rosar. vel mucilag. acaciæ q. s. ut fiat pil. No. lx. A. D. Cir. xi. 61. A. J. Ph.

Pills of Nitrate of Silver. A. Vee proposes that nitrate of silver pills be prepared by mixing 20 centigram. nit. silver with 2 gram. precipitated silica, and forming with tragacanth into a mass, which is to be divided into 20 pills. Combined in this way, the silver salt is not liable to decomposition. Nitrate of potassa, substituted for silica, may be preferable. Ph. Zeitschr. Rus. v. 258.

Anti-Cholera Pills, recommended by Dr. Hager, are prepared of the following ingredients: Quiniæ sulph., pulv. arom., aa ʒj, acid. hydrochlor. gtt. xv., ferri sesquichlor. sol. gtt. xx., rad. gentian. pulv., ext. trifolii, aa ʒij, ol. cinnam. gtt. x., pulv. althææ q. s. ut ft. pil. no. 120. Dose 2 to 3 pills. He advances the theory that persons are only affected by cholera if their blood is in an abnormal condition, and therefore recommends the administration of quinia and iron. Ph. C. H. July, 1866.

Castor Oil Bolus. Artus proposes the following recipe: Castor oil half ounce, g. arabic 1½ dram, aq. cinnam. 2 drams; form an emulsion, add 2 drams pulv. althææ, evaporate to pilular consistence, and form 24 boli. Ph. Zeitschr. R. v. 198.

Santonine Tablets. Beck recommends their preparation by dropping a solution of santonine in chloroform, of given strength, on prepared sugar tablets. This insures a positive quantity of santonine in each tablet. 10 drops of a solution of 2 drams santonine in 1 oz. (troy) chloroform will make the tablet of half grain strength. Ph. C. H. Aug. 1866, 314.

PLASTERS.

Adhesive Plaster. T. G. (Gobley?) recommends the following mixture as a coating for linen or silk, to form a plaster similar to that proposed by Dr. Fort: 5 p. gum, 5 p. water, 2 p. glycerine. The plaster prepared from this mixture is odorless, very flexible, never becomes brittle, very adhesive, and never becomes hard on the skin. Beside these advantages it is cheap. Viertlj. Ph. 1866. Ph. Zeitschr. Rus. v. 501.

Dallwig prepares an adhesive plaster mass by melting together emp. litharg. simp. 3x, ceræ citrinæ, sevi bovini, aa 3j, sapon. domest. pulv. 3j, resin. damar., resin. pini, aa 3iiss, which is then strained. A portion of this is melted on a water-bath, and sufficient benzole added to keep it of a syrupy consistence when cold. It may then be spread on sized muslin with an ordinary brush, and forms an excellent adhesive plaster. Ph. Zeitschr. Rus. vi. 46.

Cantharides Plaster. The addition of a small quantity of balsam of Peru to this plaster, say $\frac{1}{2}$ oz. to the pound, is recommended by a writer in Ph. C. H. Dec. 1866, to prevent mould. It not only prevents this, but gives it a pleasant odor. (?)

Plasters with cantharides or vegetable powders have been stated to be preserved from moulding by the addition of a small quantity of glycerine. A writer in Ph. C. H. Sept. 1866, states that thus prepared they will not keep any better than without it, unless the ingredients are perfectly dry.

Plaster of Pitch and Cantharides. Mr. G. C. Close reports on this plaster to A. Ph. Assoc. He recommends the addition of more wax than the officinal process requires. Proc. A. Ph. A. 1866, 206.

Lead Plaster. A. Gray recommends that the litharge be first triturated intimately with a portion of the oil, and then mixed with the balance, previously heated. When litharge is added to the oil in the dry state, it is apt to form small lumps, which will be acted upon with great difficulty, and in many cases form an imperfect plaster. N. Rep. xv. 368.

Oxide of Zinc Plaster is prepared by Capassoni by heating a mixture of 10 p. Castile soap and 5 p. sulph. zinc on a water-bath, until a portion, when kneaded under water, will no longer adhere to the finger. It is recommended as a substitute for lead plaster, which is regarded by some physicians as injurious. In combination with turpentine, resin and wax, in proper proportion, it forms an excellent adhesive plaster. Ph. Zeitschr. Rus. vi. 55.

POWDERS AND GRANULES.

Alcoholized Iron. According to Procter, the powdered iron

imported under this name is probably produced by mechanical means. The term alcoholized does not signify, in the language of European authors, that alcohol is used in its reduction, the term being used to denote the fineness of the powder, in the same sense in which æthereal is applied to volatile oils, signifying that they are highly rectified. The finest samples of alcoholized iron are perhaps equal to good iron per hydrogen, and are remarkably free from sulphur. A. J. Ph. xxxix. 11.

Effervescing Granules. Mr. Albert E. Ebert offered some verbal suggestions as to the proper method of preparing effervescing granules. He observed that the imported article consists of alkaline and acid granules, mixed in the proper proportion. Proc. A. Ph. A. 1866, 45.

Mr. Wm. H. Laster prepares these from many substances, by mixing the substance desirable to administer in the granular form with dried bicarb. soda, and stirring this into carefully fused citric acid (dried previous to fusion) equivalent to the amount of soda employed. On removing from the fire and stirring until cool, the mixture is granulated in the form usually found in the market. A. D. Cir. xi. 82.

Granular effervescing Citrate of Magnesia. Mr. J. W. Mill reported on this substance at the last meeting. See Proc. 1866, 222.

Wheat Phosphate, a dietetic originally proposed by Dr. Tilburn Fox, is prepared by Ebert by evaporating a decoction of bran, on a water-bath, to dryness, and mixing the dry mass with three times its weight of sugar. It should be passed through a very fine sieve. A. J. Ph. xxxix. 107.

Mr. Thomas D. Williams draws attention to his process for preparing this dietetic, which he claims to produce a more concentrated and permanent preparation than can be obtained by Ebert's process. A. D. Cir. xi. 173.

SOLUTIONS.

Solution of Chromate of Copper is prepared by dissolving 2 p. blue stone in a solution of 1 p. bichromate of potassa, and adding to this a concentrated solution of carbonate of soda, in small quantities, as long as a precipitate is produced. The solution

must be kept boiling hot during the entire operation. The precipitated chromate is of a brown color, and will readily dissolve by the aid of a little ammonia. Ph. C. H. July, 1866.

Collodion. Dr. J. P. Maynard prepares gun cotton by soaking cotton for about two hours in a mixture of 2 p. sulphuric acid, sp. gr. 1.850, and 1 p. nitric acid, sp. gr. 1.450, the temperature of which has been permitted to fall to 100° F. before the immersion of the cotton. It is to be washed and dried, and is then found to be a gummy substance, perfectly soluble in ether, sp. gr. .750. Careful manipulation insures success. A. D. Cir. x. 227.

Solution of Citrate of Magnesia. Professor J. M. Maisch recommends the following proportions for preparing this solution, which he states will form a uniformly good preparation: 450 grs. citric acid, 100 grs. light calcined magnesia, 1 fluidounce syrup of citric acid, 40 grs. bicarbonate of potassa, and q. s. water to make 12 fluidounces. He finds the amount of syrup directed in the officinal formula to be too large. The addition of all the magnesia at once is objectionable; it should be added in small quantities, and preferably suspended in a portion of the water. A. J. Ph. xxxix. 1.

A correspondent of the A. D. Cir. recommends the process of M. Generia, of Paris, which differs in general from other formulas only in the addition of carbonate of magnesia to the filtered solution of citric acid and syrup, the relative proportions being the same. It is stated that when the syrup is added to the filtered solution of citrate of magnesia, this is speedily precipitated. A. D. Cir. xi. 31.

The following formula of Mr. J. T. Buck is in absolute contradiction to the above statement, yet Mr. B. has followed it with invariable success: Dissolve 3 oz. carbonate of magnesia in a solution of 6 oz. citric acid in 5 pints pure water, filter, and add 1 pint simple syrup and q. s. essence of lemon. Agitate, and introduce into twelve bottles in equal proportions; add to each bottle 40 grs. bicarbonate of potassa. A. J. Ph. xxxix. 112.

Chas. B. Allaire prepares the solution by accurately saturating

two-thirds of the citric acid, required by the officinal formula, with calcined magnesia, and then adds the remaining one-third. By this procedure he obtains a permanent solution, which may be evaporated to a pasty consistence without becoming insoluble, and contains a definite amount of magnesia. A. J. Ph. xxxix. 96.

Liquor Bismuthi. Mr. W. L. Horvie, in a paper on this subject, reviews the processes of Tichborne, Blunt, Bartlett and Ebert, and concludes that the failure in the preparation of this solution is owing to the crystalline condition in which the oxide of bismuth is precipitated from its solution in nitric acid. He has observed that the presence of a small per centage of citrate of ammonia in the acid solution during precipitation, causes the precipitate to assume the amorphous form, and, based on this observation, offers a new formula, which he recommends as invariably successful. See Ph. J. and Trans. viii. 403.

Mr. G. F. H. Markoe read a paper on the subject of liquor bismuthi at the last meeting of the Association, for which see Proceedings, 1866, 252.

Solution of Acetate of Ammonia. Dr. W. H. Pile reports on this solution in answer to query 30 for 1866. Proc. A. Ph. A. 1866, 226.

In this connection Dr. E. R. Squibb gave some practical suggestions. Ibid. 47.

Solution of Per-acetate of Iron. Prof. Maisch, having found some of this solution to fall short of the requirements of the Ph. Borus., publishes the officinal process, and gives some practical hints to insure successful results. A. J. Ph. xxxix. 7.

Solution of Per-nitrate of Iron. Messrs. T. and H. Smith propose that this solution be prepared from per-oxide of iron, instead of acting directly on metallic iron, on account of the difficulty of preparing it by the latter method. Ph. J. Trans. viii. 283.

Donovan's Solution. Pedrelli proposes the following modified formula: Dissolve 20 centigram. iodide of arsenic in 120 gram. distilled water contained in a glass vessel, by the aid of gentle heat, and add to this 40 centigram. biniodide of mercury and 8

to 4 gram. iodide of potassium. Filter, and preserve in well-stopped vials. A. J. Ph. xxxix. 182.

Solution of Meconate of Morphia. Prof. Procter proposes a formula by which it represents tinct. opium in strength. The opium is exhausted with water, the infusion filtered, and treated with acetate of lead, which precipitates the meconic acid. The precipitate, after thorough washing, is suspended in water, and treated with sulphhydric acid, after which it is filtered from insoluble sulphide of lead, and evaporated to expel excess of HS. The liquor from which the meconic acid is precipitated is treated with sulphuric acid to precipitate excess of acetate of lead, filtered, evaporated, and mixed with its bulk of alcohol. It is then precipitated with ammonia, and the precipitated morphia, after washing, dissolved in the solution of meconic acid. The solution is now brought to three-fourths the desired measure, and strong alcohol added to make the desired quantity. It is more or less colored, according to the quality of opium. A. J. Ph. xxxix. 104.

SPIRITS, ESSENCES, ETC.

Spts. Ammon. Arom. of the British Pharmacopœia is at present made by distillation. Mr. J. T. Miller proposes a similar formula to that of the U. S. Pharmacopœia, regarding the distillation as unnecessary. Prof. Redwood, in commenting on this paper, does not agree with him on that point, regarding preparations of this character greatly improved by distillation, more especially when they contain volatile oils that are prone to oxidation. Ph. J. and Trans. viii.

Spts. Nitrous Ether. Prof. Redwood proposes to make spirits of nitrous ether by the direct action of nitrous acid on alcohol. The general outline of the process is to heat a mixture of nitric acid, sulphuric acid, copper wire and alcohol together. It is claimed for this process that a uniform spirit can always be prepared by it. Ph. J. and Trans. viii. 508.

Mr. J. F. Miller suggests a colorometric test for the strength of sweet spirits of nitre, which is dependent on the green color produced by nitrite of ethyl on solution of alkaline nitrate of copper. By comparison with spirits of known strength, sufficiently accurate results are obtained. Ibid. 57.

Artificial Fruit Essences. Kletzinski publishes the composition of the most important fruit essences. All of them contain glycerin, which appears to blend and harmonize the various odors which enter their composition. Drug. Polyt. Jour. A. J. Ph. xxxix. A. D. Cir. xl. 82.

Natural Fruit Essences. Seugnot prepares fruit essences directly from the fruit, by distillation, which are said to excel in delicacy of flavor. About one-twentieth the weight of the fruit is obtained as distillate, which is found to contain but a small amount of volatile oil, but is exceedingly concentrated, and will perfume a large quantity of material. The flavors of raspberries, apricots, peaches and pine-apples are thus obtained, but may be prepared from other fruits. J. de Ph. Chim. N. Rep. xvi. 251.

SUPPOSITORIES.

Messrs. Bullock & Crenshaw recommend butter of cocoa as a basis in winter, and the addition of about one-twentieth to one-sixteenth of paraffine in summer. A. J. Ph. xxxix. 121.

SYRUPS.

Syrups from Extracts. M. Gairaud recommends that to obtain clear syrups from extracts which form a turbid solution with water, as, for instance, krameria, alcohol should be added to the aqueous solution until it becomes clear, and this, after filtering, added to boiling syrup, which is then boiled until all the alcohol is expelled. Ph. Zeitschr. Rus. vi. 55.

Fruit Syrups. Tersler recommends that all fruit juice be allowed to ferment two or three days, but not longer, before making syrup. The object being principally to convert pectine into pectic acid, that time will suffice; but if allowed to ferment longer, a portion of the sugar will be converted into alcohol, and various fruit ethers formed which injure the natural aroma of the fruit. Ph. C. H. vii. 363.

Syrup of Ipecac. J. J. Brown recommends that it be prepared by extracting the root with dilute acetic acid, adding 1 lb. av. sugar to 10 fluidounces of infusion, and finishing the syrup with addition of 1 fluidounce of alcohol. A sample made accord-

ing to this process had kept for eighteen months without any change, although freely exposed. Ph. J. Trans. viii. 606.

Sirup de Pepsin. W. H. Crawford gives the following formula for this syrup, as first prescribed by Dr. C. L. Boisligniere:—Take of pepsine (Boudault's) $2\frac{1}{2}$ drachms, distilled water, sherry wine, of each 4 fluidounces; digest for four hours at a temperature not exceeding 85° F., then add tinct. card. co., syrup of strawberries, of each 4 fluidounces, carmine 2 grs.; digest and filter. Dose, a tablespoonful. A. D. Cir. x. 227.

Syrup of Pepsine and Bitter Orange Peel. M. Besson prepares this syrup, and asserts its advantages over the powdered (amylaceous) pepsine of Boudault. An infusion of 50 rennets is evaporated in vacuo to 74 troyounces; to this is added 170 grains lactic acid, 3 oz. spirit of orange, and $3\frac{1}{2}$ oz. ext. curacoa (bitter orange peel). The liquid is filtered, and 144 troyounces of pure sugar dissolved in it. An ounce of this syrup is equal to $2\frac{1}{4}$ grs. acidified pepsine. J. Chin. Med. et de Rep. Ph. A. D. Cir. x. 175.

Syrup of Phosphate of Iron, as made according to Ph. B., is liable to decompose when exposed to the air, as determined by Umney, who proposes that it be kept in small bottles, so filled as to exclude the air as much as possible.

Syr. Phosph. Iron, Quinia and Strychnia. Aitkens' formula is as follows: Precipitate a solution of 5 drams protosulph. iron in 1 oz. boiling water, with 1 oz. phosph. soda in 2 oz. boiling water, and wash the resulting precipitate. Then precipitate 192 grs. sulph. quinia from its acid solution with aqua ammoniæ, and wash the precipitate. Dissolve the washed precipitates, together with 6 grains of strychnia, in 14 oz. dilute phosphoric acid, filter, and dissolve in the filtrate 14 oz. of sugar, without heat; strain.

Mr. Charles Bullock recommends a modification in the manipulation, which consists principally in the separate solution of the phosphate of iron and the alkaloids in the dilute phosphoric acid. A. J. Ph. xxxix. 177.

Dr. Lyons recommends this syrup as a most powerful tonic combination. A. J. Med. Sc. cv. 131.

Syrup of Lime. Dr. E. R. Squibb, in a communication to

Dr. Buckingham, gives a formula for the preparation of sucrate of lime, as follows: Take of clean well-burned lime 400 grains, granulated white sugar 3200 grs.; triturate together, add 8 fluidounces of boiling water, and boil five minutes. Dilute to 2 pints with boiling water, and filter. If this be evaporated to 1 pint, a syrup containing 24 grs. of caustic lime in the fluidounce is obtained, which is recommended as most convenient for dispensing. If it is carefully evaporated until it becomes thick and ropy, and is then allowed to cool, it may be powdered, and a perfectly soluble sucrate is obtained, containing from 8 to 10 per cent. caustic lime. A. D. Cir. xi. 108.

Syrup of lime, as prepared by Trousseau's formula (see Parrish's Pharmacy), is recommended by Dr. Buckingham in the treatment of acute rheumatism. Ibid. 83.

Iodinized Syrup of Horse-radish. E. Fougere publishes his formula for preparing this syrup, which was first prepared by N. Lancelot, of Paris. 10. kilo. each fresh scurvy grass and water cress, 2 kilo. orange peel, and 0.5 kilo. cinnam. buds are macerated 48 hours with 40 litres white wine, and then distilled until 10 litres distillate are obtained. In the meantime 10 kilo. fresh horse-radish is sliced, and contused with 20 kilo. sugar, dissolved without heat in water, the above distillate added, expressed, and brought to 32 litres. 420 gram. iodine is now dissolved in 33 litres simple syrup by dividing the materials in several stoppered bottles, exposing to gentle heat, and agitating occasionally until a colorless syrup is formed. This syrup is then mixed with the one previously obtained. A table-spoonful, containing 2 grs. iodine, is a dose. A. J. Ph. xxxix. 311.

TINCTURES.

Tinctures. M. Filhol favors their preparation by maceration in preference to displacement, for he finds that tinctures prepared by the latter method are more apt to form deposits than those prepared by the old method. Tinctures should be used as soon as possible after their preparation, for alcohol is not as good a preservative for them as is usually supposed. Ch. News, Feb. 1867, 65.

Mr. John Attfield has examined quite a number of tinctures,

as made by different manufacturers, with a view to determining their alcoholic strength, and finds them all deficient. Ph. J. Trans. viii. 205.

[An examination of tinctures in this country would most probably lead to similar results.]

Tinct. Benzoin is prepared most conveniently and rapidly, according to Markoe, by shaking finely powdered benzoin with the requisite amount of alcohol, and filtering immediately. Proc. A. Ph. A. 1866, 46.

Tinct. Conii Fruct. (Ph. Br.) is, according to the observations of Mr. Hemingway and Dr. Harley, useless as a remedial agent. As much as two ounces, taken by Dr. Harley, was entirely without effect. Dr. Harley, in a paper to the Pharmaceutical Society states his experiments. Ph. J. Trans. viii. 381.

Tinct. Chlor. Iron. C. L. Diehl offers some suggestions as to the proper manipulation in the preparation of this tincture. Proc. A. Ph. A. 1866, 250.

N. Bayllet uses this tincture with success in the treatment of erysipelas, by painting the parts affected with it, and repeating this 5 or 6 times, as fast as it dries. The stained cuticle will peel off a few days after recovery, without injury to the parts. Med. & Surg. Rep. A. D. Cir. xi. 83.

Tincture of Lycoperdon. The dusty powder of *lycoperdon bovista* appears to possess anæsthetic properties, and has lately come into use in the form of tincture. Cramer prepares it by macerating 4 troyounces in 4 fluidounces of water for 24 hours, then adding 12 fluidounces of alcohol and macerating for one week. It is a dark reddish-brown liquid, which may be given in teaspoonful doses. A. J. Ph. xxxix. 113.

Tinct. Odontalgica, of Dr. Reichel, is prepared as follows: Bals. tolu 1 ounce, bals. de Mecca, bals. Peru, aa $\frac{1}{2}$ ounce, creasote 1 dram, oil of cloves 2 drams, tinct. opii crocat. $\frac{1}{2}$ ounce, spts. vini rectiffs. 28 ounces, ether. 2 oz.; mix, macerate and filter. Ph. C. H. vii. 474.

Tinct. Opii Deodorata. Ebert states that the ether used to deodorize the infusion of opium may be refitted for the same use

by shaking it with caustic potassa dissolved in its weight of water, in the proportion of 1 pint to 2 ounces; the odorous, resinous and coloring matters are dissolved by the caustic solution, and the ether, thus rendered sufficiently pure to answer for the same use, may be decanted.

The same author regards benzine as a convenient and sufficient substitute for ether in deodorizing this preparation, and advocates its employment for that purpose; or that a tincture be prepared from opium previously exhausted by benzine.

Tinct. of Hundred-leaved Roses. Enz has subjected a tincture of roses to examination, which he prepared from the fresh petals of *Rosa centifolia*, by pounding them in a mortar, covering them with alcohol sp. gr. 0.83, and macerating for 8 days. He found it to contain malic, tartaric, tannic and phosphoric acids, lime, magnesia, fatty and resinous matter, bitter extractive, volatile oil, and a very unstable red coloring matter. The addition of borax to the tincture produced a bright green color; of alum, a greenish color; acids, a bright red color; and sesquichloride of iron, a dark green color, becoming red on addition of acetate of soda. *Viertelj. Ph. xvi. 53.*

Arom. Sulph. Acid. Thos. N. Jamison recommends the following formula as a substitute for the officinal preparation, which he states it represents in every essential property, differing only in color. *Ol. cinnâm. 12 m, tinct. ginger 2 fluidounces, alcohol 24 fluidounces, sulphuric acid 6 troyounces.* The preparation is of a light straw color. *A. J. Ph. xxxix. 201.*

WINES. -

Vinum Diureticum of the Hôtel-Dieu, according to Trousseau, is prepared by macerating, for 2 weeks, 6 p. fol. digitalis, 3 p. rad. scillæ, and 30 p. bacc. juniperi, in 400 p. vin. alb. and 50 p. spirit. vini rectific., expressing, adding 20 p. dry acetate of potassa, and filtering. *Ph. C. H. Aug. 1866.*

Vin. Chinæ Ferratum. (Foresterii.) This popular tonic wine, which has gained considerable reputation on the European continent, is prepared as follows: Digest, at a gentle heat, 5 p. pyroph. iron, 5 p. citric acid, 10½ p. pyroph. soda, and 50 p. glycerine, with 200 p. Malaga wine, until the salts are dissolved,

and filter. Mix this with a filtered tincture prepared by macerating 50 p. red bark and 15 p. orange peel (deprived of pulp) in 750 p. Malaga wine. Filter the mixture if necessary. Ph. C. H. Sept. 1866.

• MATERIA MEDICA.

VEGETABLE DRUGS. •

RANUNCULACEÆ.

Aconitum napellus. The question whether aconite contains a volatile acrid body, to which it owes a portion of its activity, has been answered in the negative by Mr. Thos. B. Groves. Its active properties are due to aconitia only. Ph. J. Trans. Sept. 1866. A. J. Ph. xxxviii. 513.

Aconitum heterophyllum (Wall). According to Schroff, this Himalayan variety of monkshood, bears in its physical characters and therapeutic action a similar relation to *A. ferox* (Wall) that the European variety, *A. anthora*, bears to *A. napellus*. The root is much smaller, weighing from a few grains to a scruple, while that of *A. ferox* weighs from half a dram to one and a half ounces. It has frequently been mistaken for *A. ferox*, for which reason these differences are here stated. N. Jahrb. Ph. xxvii. 80.

Helleborus. The active principles of hellebore are helleborine and helleboreine. Helleborine acts, according to Marmè, in small doses, like digitaline, diminishing the pulse. In large doses it accelerates it, and produces a brief paralysis of the heart. It increases the secretion of saliva, and acts as an irritant to the digestive tube, producing violent vomiting and dysenteric diarrhoea, accompanied with severe pains. Helleboreine acts on the intestines like helleborine, but differs in being slightly narcotic also. A. J. Med. Sc. cvi. 529.

SARRACENIACEÆ.

Sarracenia purpurea, Stan. Martin finds the root to contain an alkaloid, sarraceniina; a pulverizable, tannin-like resin, readily soluble in alcohol and ether; an aromatic bitter extractive, soluble in water and alcohol; and a coloring matter. Ph. Zeitschr. Russ. v. 565.

PAPAVERACEÆ.

Papaver somniferum. A fatal case of poisoning by poppy heads is noticed by Dr. F. L. Winkler, in N. Rep. xvi. 35.

Opium. Peterman has determined the percentage of morphia in a number of commercial samples of opium, with the following results:

French opium, (cultiv. in Dep. Puy de Dôme,)		11.9 per cent.
Patna	a,	5.1 "
"	b,	4.9 "
Smyrna	a,	8.3 "
"	b,	5.6 "
"	c,	7.5 "
Egypt	"	3.9 . "

The opium was extracted by diluted acids in preference to alcohol or water alone. The morphia, precipitated by ammonia, was estimated by titration with sulphuric acid, and the excess of acid measured with normal solution of soda. By titration the percentage was always found a little larger than by simply weighing the precipitates. Arch. Ph. cxxvii. 209.

Prof. Graham presented an essay on American opium at the last meeting of the Association. He found, in the specimens examined by him, 4 per cent. morphia and 3.5 per cent. narcotine. Proc. A. Ph. A., 1866, p. 236.

Mr. Emanuel Weiss states that the poppy is readily cultivated in Arizona, 10 acres yielding as much as 1200 lb. of good opium, containing 10 per cent. of morphia. Two able field hands can put this under cultivation, and it can be harvested inside of 100 days after planting. A. J. Ph. xxxviii. 473.

(At those rates it would certainly pay well to cultivate opium, but due allowance must be made, for the statement appears to be dependent on calculation and not substantiated fact.)

Landerer states that Turkey opium is frequently adulterated with crushed raisins and salep, which may be detected by the tests for starch and glucose. A. D. Cir. x. 234.

Sanguinaria canadensis. Thomas M. Newbold has examined the root, with a view to the isolation of the acid principle heretofore supposed to be chelidonic acid. He finds the acid to

agree in some of its reactions with chelidonic acid, but it differs in others, and he therefore proposes to name it sanguinarianic acid. A. J. Ph. xxxviii. 496.

CRUCIFERÆ.

Brassica oleracea. Reinsch has discovered a new principle in the cauliflower, which he proposes to name *Caroiolin*. It exists in large quantity, is crystallizable, tasteless, odorless and freely soluble in water. In aqueous solution it is rapidly decomposed, giving off the peculiar odor of boiling cabbage and other vegetables. N. Jahr. Ph. xxvi. 196.

MALVACEÆ.

Gossypium herbaceum. Dr. W. C. Bellamy recommends the root highly as a uterine stimulant, and has used it with decided success in amenorrhœa and dysmenorrhœa. He suggests that the root is best gathered in November and December. A. D. Cir. xi. 35, from Atlanta Med. and Surg. Journ.

TILIACEÆ.

Heliscarpus copalifera, which abounds in some portions of Mexico, yields a white copal resin, which is employed by the aborigines for fumigation. It is nearly colorless and possesses an aromatic but unpleasant odor. A. J. Ph. xxxviii. 503.

ANACARDIACEÆ.

Schinus molle (L.). The bark of this tree, known as Mollé or false pimento tree, is used, according to Guibourt, among Mexican practitioners as an astringent. It grows in all parts of Mexico. The fruit is an aromatic berry, resembling pimento. N. Rep. xvi. 240.

Rhus acuminata (DeC.). This tree, abounding in the forests of the Himalayas, furnishes, according to Stewart, the so-called *Zebra wood*. It is also said to yield the horn-like "Kakrasinghi galls." Heretofore the *Omphalobium Lambertii* (Dr. C.) was supposed to yield the zebra wood. N. Rep. xvi. 50.

BALSAMINACEÆ.

Liquidambar orientale. Storax is recommended by Dallwig

as a local application in the treatment of itch. 9 p. storax are combined with 2 p. olive oil and 1 alcohol. Ph. Zeitschr. Russ. vi.

RUTACEÆ.

Ptelea trifoliata. According to Justin Steer, the tonic effect of the bark of the root is due to berberina, as determined by him by analysis. Besides berberina, it contains oleo-resin, yellow crystalline coloring matter, starch and albumen, but it contains no tannic acid. The drug has of late acquired considerable reputation among Western physicians in the treatment of dyspepsia, and as a general tonic. A. J. Ph. xxxix. 337, from St. L. Med. Rep., 1867.

VITACEÆ.

Uvaria odorata. The volatile oil, obtained from the flowers of the East India grape tree, is a component of the later perfume, Esprit d'Ylangylang, introduced by Rigaud of Paris. It possesses an exceedingly delicate odor, resembling that of hyacinth. In the East Indies this oil and the bark of the root enjoy some reputation as remedial agents; the latter as an astringent. Ph. C. H., 1866, 478.

AURANTIACEÆ.

Citrus limonum. Mr. Geo. Mee preserves lemons by varnishing them with an alcoholic solution of shellac, and has kept them perfectly fresh, by this means, for many months. Ph. Journ. Trans. viii. A. J. Ph. xxxviii. 474.

C. limetta. The question of the antiscorbutic properties of lime juice has of late been considerably discussed in England. According to Dr. Stone, the remedial action is not so much due to the citric acid as to the potash always present in lime juice, and it therefore becomes a question of importance, whether citrate of potassa can economically be substituted for it. Ch. H., Jan. 1867, p. 37.

Citrus bigaradia. The flowers yield the orange flower water of commerce, but for a number of years the leaves have also been used, either in conjunction with the flowers or alone, and a very superior orange flower water is the result. N. Rep. xvi. 47.

Aegle marmelos (Corr). This tree abounds in the Bignour forests of the *Himalayas*. The wood is used for pestles, etc.; the bark furnishes a yellow dye; the ripe fruit is used to prepare a sherbet, and the unripe fruit is used in medicine. The latter has recently reached English markets in the form of dried slices, under the name of *Bael*. N. Rep. xvi. 47.

RHAMNACEÆ.

Rhamnus catharticus. Lefort has added another proximate principle to the already large number said to exist in buckthorn berries, viz: *ramnegine*, to which he gives the formula $C_{12}H_6O_6 + 2HO$. It has the same properties as rhamnine, with the exception that it is soluble in water, and of a lighter yellow color. Ch. N., Nov., 1866, 250.

R. frangula. Kulby has examined the bark with a view to the determination of its active principle, which he finds to consist in an acid closely allied to cathartic acid, previously discovered by him in senna, and it is prepared by a similar process. By the action of mineral acids it is split into glucose and a substance apparently identical with *cathartogenic* acid. The author also found a peculiar coloring matter, which he names *Avornine*, and which, by the action of mineral acids, is split into glucose, avornic acid and an amorphous resin. N. Rep., 1866.

TERNSTROMIACEÆ.

Thea Chinensis. Hlasiwetz and Malin state that tea contains, besides the substances already known, gallic acid, oxalic acid and quercitrin. Wien Akad. Ber., 1867.

LEGUMINOSÆ.

Gastrolobium bilobum. This shrub, growing on meadows in Western Australia, is held to be poisonous to cattle feeding on it, from the fact that where it grows, cattle cannot browse without taking sick and dying, if not removed in time. *Fraas* has examined the leaves of this plant, but has been unable to find a poisonous principle. He found albumen, tannic acid, bitter matter, chlorophyl, fixed oil, resin, wax, sugar and oxalic acid; the ashes contained NaCl, KO, NaO, CaO, MgO, Al_2O_3 , Fe_2O_3 , SO_3 , PO_3 , SiO_3 , and CO_2 . He concludes

that the poisonous effects observed are more likely due to some of the lower order of fungi, which frequently infect plants. He also inclines to the belief that these are the cause of poisoning on the so-called poison meadow in McAlmose Valley, between Lookout and Pigeon Mountain, Georgia. Viertelj. Ph. July, 1866.

Myrospermum peruiferum. Mr. W. J. Jenks recommends as a test to distinguish the true from the sophisticated balsam Peru, to place a drop on the tongue, which if true will produce a liquid impression, while the sophisticated, being a solution of resins, will deposit the latter on the teeth and gums. A. J. Ph. xxxix. 7.

Myrospermum toluiferum. Balsam of tolu is sometimes adulterated with the resin of various species of *Abies*, which may be detected by treatment with benzole; the latter dissolve out the resins, leaving the balsam intact. Viertelj. Ph. 1866.

Butea frondosa (Roxb). According to J. L. Stewart, the wood of this tree is used by the inhabitants of the Himalaya region for preparing a charcoal, admirably suited for gun-powder. The bark yields a variety of Kino, which is however seldom exported. N. Rep. xvi. 47.

Senna. According to Vurlby, the active principle of senna is *cathartic acid*, and the chrysoretin of Blei and Diesel is, when pure, *chrysophanic acid*. Besides the glucosides *senna-pikrin* and *sennacrol*, already determined by Ludwig, he has found a saccharine substance which, on account of its close resemblance to mannite in properties and composition, he proposes to call *cathartomannite*. Its comp. in $C_{42}H_{44}O_{38}$. N. Rep. xv. 275.

J. B. Batka, has written a monograph on the cassia group "senna," which contains much valuable information on the sources and plants from which we obtain our commercial supplies. N. Jahr. Ph. Ph. Zeitschr. Russ. Aug. 1866, 247.

Elaud's Boontyes is the local name of a plant growing in the Orange free state, South Africa. The beans of this plant yield about 22.5 per cent. of a light colored inodorous oil, which the natives extract by boiling and use in food. The root contains 13 per cent. of tannic acid, and is employed by the natives for tanning purposes. It was analysed by Mr. John Attfield, who

obtained the above percentages and found the seeds to contain, besides the oil, 17 per cent. of albuminous matter (legumin) and 58.8 per cent. woody fibre and moisture. Ch. N. Dec. 1866, 266.

Cytisus laburnum. Husemann and Marme have obtained two new alkaloids from the seeds of this plant—*cytisin* and *laburnin*. The first is obtained from the mature seeds, the last named from the unripe seeds. They are both crystallizable, and cytisin is capable of neutralizing the strongest acids, while laburnin has only been combined with the chlorides of gold and platinum. N. Jahr. Ph. xxvi. 172.

Acacia Arab. (Willd). According to J. L. Stewart, this tree abounds in the Bignour forests of the Himalayas, where the wood is employed by the inhabitants for building purposes, and for forming various utensils, such as sugar-cane rollers, &c. N. Rep. xvi. 46.

Moringia pterigostigma (Gærtn.), which is also indigenous to the Himalaya region, yields a gum which closely resembles gum arabic, and is largely exported. Ibid. 50.

A Vegetable Soap used in China has recently reached Europe, which consists of the pods of a leguminous plant, from which the pericarp has been detached. It is used in the same manner as artificial soap and answers the purpose well. A. D. Cir. vi. 68.

ROSACEÆ.

Rosa Damascena. According to Dr. R. Baur, a variety of *R. Damascena*, denominated the Kisanlick rose, is cultivated on the southern slope of the Balcan Mountains, and yields our chief supplies of oil of rose. The season for collecting and distilling the oil lasts but three weeks, yet the average production amounts to 3—4000 pounds, and in 1866 reached 6000 pounds. The average yield is 0.04 per cent. The stills, consisting of copper alembics, the body of which is in the shape of a blunt cone, are set in brick-work, and although of crude construction, answer the purpose admirably. The roses are distilled with a definite amount of water, and a definite quantity drawn off, which is then distilled with a fresh lot of leaves until sufficiently charged with oil. When sufficient concentrated distillate is obtained, it is

distilled by itself, one-sixteenth being drawn off, and the balance used for fresh rose leaves. The portion drawn off is allowed to stand in a moderately cool place for a few days, when the oil will have separated and is drawn off, the watery portion being brought into the markets also as rose water.

The author contradicts the statements that salt water is used in the distillation, or that the roses are ever salted. Some valuable information is given on the adulteration of the oil, and the methods of detecting them. As a general rule the oil may be considered adulterated if it does not solidify in the course of five minutes, when exposed to a temperature of 12.5° C, in a thin glass tube. N. Jahr. Ph. xxvii. p. 1.

UMBELLIFERÆ.

Narthex assafœtida. Polack in his work "Persien, das Land und seine Bewohner," states that assafœtida, which was in former times abundant in the range lying between Ispahan and Mahiar, is now collected chiefly between Abadeh and Murgab, in the southern province of Laar. Ph. J. Trans. viii. 667.

ARALIACEÆ.

Panax colensi, a neat tree abounding in New Zealand, yields, according to Prof. Henkel, a gum closely assimilated to gum arabic. N. Jahr. Ph. xxvii. 26.

GRANATACEÆ.

Punica granatum. The bark of pomegranate root has lately been found adulterated with the bark of the stem, in European markets. While the bark of the root has a rusty color, that of the stem is yellow, which will readily distinguish the two. Viertelj. Pharm. xv. 606.

MYRTACEÆ.

Eucalyptus resinifera. Liquid Kino is not found to any considerable extent in British commerce, but varies considerably in density and quality. According to the experiments of Martin, the largest percentage of extract obtained was 40 per cent. It is sometimes adulterated with catechu, which communicates to it its characteristic sweet taste. J. Ph. et. d. Chim. Ph. C. H. Aug. 1866, 317.

CAPRIFOLIACEÆ.

Viburnum prunifolium. The bark of the black haw has been employed with success by Dr. D. L. Phares in the treatment of threatened abortion. It will prevent abortion, whether from accidental causes or criminal drugging, and appears specially to neutralize the effects of cotton-root bark, too frequently employed by the negroes of the south for criminal purposes. A. J. Ph. xxxix. 258.

RUBIACEÆ.

Cinchonas. Mr. J. E. Howard gives some valuable information on the effects of locality and climate, &c., on the various Cinchonas. The author suggests that there are many varieties which would be more properly classed with the sub-order *Ladenbergiæ* (*Cascarillæ*). A. J. Ph. xxxviii. 417.

Dr. F. L. Winkler has analyzed some *Calisaya* bark cultivated in Java, and found 3 per cent. alkaloids, consisting chiefly of quinia, with a small proportion of cinchonia. The bark contains a considerable amount of kinate of lime, and a little kinovic acid. N. Rep. xv. 437.

Mr. Cross, who was commissioned by the India Government to procure seeds of the various species of *cinchona* growing in New Grenada, for the purpose of propagating them in India, has made a tour of the Andes, and passed through districts which have not been explored before. His explorations and remarks on the vegetable productions of this vast region cannot fail to attract the attention of scientific men, and especially of geographers, botanists and chemists. Lond. Ch. Dr. Dec. 1866. A. J. Ph. xxxix. 160.

The leaves of *Cinchona succirubra* and *C. condaminea* have been subjected to trial by Dr. Chipperfield, of Madras, in order to determine their value as a febrifuge. While in some cases (generally mild forms) they effected cures, they were in others entirely without effect. He employed them in the form of infusion and acid decoction. Ph. J. Trans. viii. 356.

Phœbus describes the physical characters of a large variety of

cinchona barks, part of the cabinet collection of the University of Giessen, in Viertelj. Pharm. xvi. 10.

Dr. E. R. Squibb, in A. J. Ph. xxxix. 289, draws attention to the wasteful use of cinchona barks. The use of quinia as a tonic is discountenanced, for it is not only less effective than its equivalent of bark, but, by its employment, the other constituents of bark, which in their natural combination are most effectual tonics, are lost to medicine, involving a tremendous waste, and contributing largely to the destruction of the cinchona forests. To insure a more general employment of the bark in its natural form, the author gives a process, modified from that of Dr. F. L. Winkler, which, if carefully and patiently conducted, will enable any person of ordinary intelligence to satisfy himself of the quality of the bark. Quinia or its salts should only be employed as antiperiodics, and to produce quinism.

Prof. Procter has instituted some experiments with a view to the removal of cincho-tannic acid from the liquid preparations of cinchona. With gelatine he was enabled to separate most of the cincho-tannic acid, but sesqui-chloride of iron still indicated its presence. Proc. A. Ph. A. 1866, 223.

Caffea arabica. Dr. Barbier affirms that ground roasted coffee possesses remarkable disinfectant (deodorizing ?) properties. A small portion strewn over a body and about a room during a post mortem examination entirely overcame the bad odor which was emitted. Chicago Med. Ex. Dent. Cos. viii. 166.

Palicourea margravii (St. Hil.) This plant, growing abundantly in Brazil, enjoys considerable reputation as a rat poison, whence its vulgar name, "*herva de sato*." It is employed in the fresh state only, and the rats are said to be attracted by it, as cats are by valerian. The variety *P. margravii* is, however, not employed as much as the variety *P. noxia*, but on account of the difficulty of obtaining the latter, Dr. Theo. Peckolt found it convenient to examine the former, in which he found *palicourea-tannic acid*, *palicauric acid*, which is crystalline and volatile, *myroctonic acid*, which is oily and volatile, and *palicourine*, a neutral substance. He regards myroctonic acid as the poisonous principle. Arch. Ph. July and Aug. 1866, 93.

VALERIANACEÆ.

Valeriana officinalis. In answer to query 35, for 1866, Mr. Thomas Doliber reports on the relative value of New England valerian and that imported from England and Germany, and is convinced of the superiority of the native article over the foreign. Proc. A. Ph. A. 1866, 231.

COMPOSITÆ.

Eupatorium (nervosum ?), commonly called bitter bush, is indigenous to Jamaica, where it has acquired considerable notoriety of late as a powerful stimulant to the action of the heart. It is employed extensively in typhus and typhoid fevers, in the form of tincture and decoction. Brit. Ph. Conf. 1866. Ph. J. Trans. viii. 222.

Anthemis nobilis. The Roman chamomile is cultivated chiefly in the neighborhood of Leipzig and Altenberg, in Saxony, the most important plantations belonging to the village of Kieritzsch. The young shoots from plants of the previous year are planted in April or May, and they bloom from the middle of July until late in autumn, during which entire period they are collected. They do not require much cultivation, and thrive best during a uniform summer temperature. Ph. C. H. Aug. 1866, 318.

Tsa-tsin, a Chinese remedy which has found its way into European markets, is a bitter, aromatic herb, which, according to Dr. Schulz Bip, is obtained from a variety of anthemis closely allied to *A. nobilis*. Its medical properties are similar to chamomile, over which it possesses no advantages. N. Jahr. Ph. xxviii. 27.

Helenium autumnale (L.), which, according to Guibourt, abounds in the neighborhood of Puebla, bears close resemblance to *Arnica montana*, and an extract is used by Mexican physicians with similar effects. N. Rep. xvi. 233.

LOBELIACEÆ.

Lobelia inflata. A writer in Cinn. Lanc. states that the nauseating and depressing effects of lobelia may be counteracted by administering a few drops of dilute hydrocyanic acid. He recom-

mends it highly in the treatment of bronchitis and asthma. A. D. Cir. xi. 165.

PEDALIACEÆ.

Sesamum indicum. Flückiger, in an essay on the seeds of this plant, describes their physical characters, and states that at a temperature of 100° C. they will lose 4.25 per cent. of their weight. They contain about 50 per cent. of fixed oil (the specimen examined 56.33 per cent.), and when burned yield 8 per cent. ashes. The oil is of a light yellow color, mild to the taste, and has a sp. gr. of .9191. Viertelj. Pharm. xvi. 42.

SCROPHULARIACEÆ.

Digitalis purpurea. Pulvis digitalis has been used with advantage in the treatment of hydrocele. It is employed in the form of ointment, in the proportion of 1 p. to 5 p. lard. Memph. Med. Rep. A. D. Cir. x. 251.

Dr. Gallard recommends the remedy in large doses in the treatment of typhoid pneumonia. A. J. Med. Sc. cv. 249.

Dr. S. W. D. Williams confirms the experience of Dr. Robertson as to the value of digitalis in the treatment of mania, based on his observations in about 30 cases. Ibid. 247.

LABIATÆ.

Cunila Mariana. The herb contains, according to Ph. Milleman, volatile oil, tannic acid, glucose, gum, extractive and resin. The volatile oil, when first distilled, has a reddish amber color; but becomes light yellow on exposure to light; in odor it resembles oil of monarda and has a sp. g. of 0.920. A. J. Ph. xxxviii. 495.

Salvia hispanica. This plant known, vulgarly as Chia in Mexico, yields a seed which possesses emollient properties similar to quince seed, and yields a fixed oil, possessing properties similar to linseed oil, which, on account of the scarcity of the chia oil, is frequently sold for it. N. Rep. xvi. 234.

CONVOLVULACEÆ.

Ipomœa turpethum. The root has of late gained considerable favor in France by its use in the preparation of a popular nos-

trum (Le Roys purgative draught). According to Spirgatis it contains two resins, a soft resin soluble in ether, and a brittle resin insoluble in ether. The latter he names turpethine. Ann. Ch. Pharm. July, 1866.

Cuscuta monogyna. According to Landerer, this plant is used with great success by the Orientals as a household remedy for the skin disease of children, "crusta lacta." Landerer prepares a syrup from a very strong infusion, which he has used with success. It is a little climbing plant which twines itself around the stems of *Pistacia Terebinthus*. Arch. Pharm. cxxviii. 224.

SOLANACEÆ.

Hyoscyamus niger. Mr. W. A. Tilden has made some further investigations on the active principle of hyoscyamus, and has determined its basic characters, and that it is soluble in water, alcohol, ether and chloroform, and that it is crystallizable. Its aqueous solution has a strong acrid and bitter taste, and is decidedly alkaline to test paper. It is rapidly destroyed by alkalies. Ph. J. Trans. viii. A. J. Ph. xxxviii. 527.

Solanum paniculatum. The jurubeba is acquiring considerable reputation in Pernambuco for a number of complaints, among which are intermittent fever, liver complaint, dropsy, &c. It will be represented in commerce in the form of leaves, fruits and roots. At Pernambuco, plaster, powder, tincture, wine, syrup, an alcoholic and a watery extract, electuary and an oil are prepared from these substances. A. J. Med. Sc. cv. 244.

Capsicum. The use of capsicum in the treatment of delirium tremens is recommended as efficient and reliable by Dr. Lyons. It produces a powerful stimulant and sedative action, and the latter action, together with the fact that it belongs to the Solanaceæ, incline the author to the suggestion that it may contain a volatile alkaloid, hitherto undiscovered. A. J. Med. Sc. cv. 248.

APOCYNACEÆ.

Wrightia antidysenterica. Husemann has examined the seeds relative to their toxicological properties and therapeutic value. They exercise an intoxicating influence on small animals,

followed frequently by vomiting. In large doses they are narcotic and capable of producing death. The author doubts their remedial value, as all the effects produced by them are far more readily attained by other remedies.

Boundau. This plant, growing in Africa, contains a poisonous principle, soluble in water and alcohol, which produces an action on the nervous system analogous to nux vomica. It is used by the natives as an ordeal poison, as some patients recover after its use, and are then held innocent of the charges which may have been brought against them. A. D. Cir. xi. 43.

ASCLEPIADACEÆ.

Asclepias contrayerva. Guibourt states that the mechoacan root of European commerce is obtained from this plant. The plant that yields the true mechoacan has not yet been determined, but judging from samples sent to the author by M. Merck, the root does not much differ from the fusiform or male jalap of Ladonois. A. J. Ph. xxxviii. 501.

OLEACEÆ.

Olea Europæa. According to de Luca all parts of the olive tree contain mannite. The leaves, flowers and unripe fruit contain the largest proportion. As the fruit ripens it loses mannite, and when quite ripe contains no mannite at all. These facts would indicate that the oil is produced at the expense of the mannite. Viertelj. Ph. xvi. 120.

Olive Oil is recommended for dyspepsia, in doses of a teaspoonful after meals. A. D. Cir. x. 223.

Lailler uses as a test liquid for olive oil a mixture of 2 p. solution of chromic acid, (cont. $\frac{1}{8}$ oz. CrO_3) and 1 part nitric acid, sp. g. 1.38. All fixed oils generate heat and are blackened when mixed with this liquid, with the exception of olive oil. When 1 part test liquid is mixed with 4 parts genuine olive oil, without regard to quality or source, no heating occurs; at the end of 48 hours it will begin to solidify, and in a few days will have become quite solid and of a blue color. Ph. C. H. Aug. 1866.

Syringa vulgaris. Wittstein has analysed the ashes of the

leaves and flowers of this plant. The leaves of the variety with white blossoms yield 1.495 per cent. ashes, and contain 68.28 per cent. of moisture; the blossoms, 1.181 per cent. ashes and 81.24 per cent. water; the leaves of the violet variety, 1.427 per cent. ashes, 70.01 per cent. water; the blossoms, 1.141 per cent. ashes and 73.15 per cent. water. The composition of the respective ashes varied considerably. Viertelj. Ph. xvi.

POLYGONACEÆ.

Rheum. A. Fero, formerly agent of the Russian Government at Kiachta, has published a paper on the various rhubarbs now used in Russia, their sources, physical and chemical characters, and medicinal value, which is republished in Viertelj. Ph. xv. 485.

An article of rhubarb has lately been offered in European markets by some Jewish peddlers, as genuine Chinese rhubarb at a very low price. On examination it proves to be English rhubarb, so prepared as to be scarcely distinguishable from the genuine article. Upon the fracture it is of a beautiful red color, but destitute of the marbled appearance of genuine Chinese rhubarb. Its taste is not so astringent, and its odor not so marked. Ph. C. H. Aug. 1866.

LAURACEÆ.

C. F. Meissner, in a monograph on this Order, fixes the whole number of species at 972. Of these 447 belong to America, 445 to Asia, 56 to Australia, 25 to Africa, 1 to Europe. The Tropic Zone possesses 907 species, of which the Equatorial Zone has 538. The majority of this order grow in the forests of hot low-lands and preferably in humid soil. In its geographical distribution, it resembles most closely the order *Myrtaceæ*.

Sassafras officinalis. Prof. Procter, in answer to query 18 for 1866, reports an essay on *Sassaf. off.*, which thoroughly exhausts the subject, and is a valuable addition to its history. Proc. A. Ph. A. 1866, 211.

Persea gratissima (Spr). The fruit of this tree has been subjected to analysis by Wittstein, who finds that ether will extract 7 per cent. of its weight, consisting chiefly of fatty matter, bitter principle and tannic acid. Alcohol subsequently extracted

5.4 per cent. of matter containing bitter principle, tannic acid, a brittle, reddish resin and sugar. To cold water the residue yielded bitter principle, tannic acid, gum and albumen, and subsequently to boiling water 10.4 per cent. starch, leaving 11 per cent. of residue. When subjected to distillation the fruit, (kernels) yields a white camphoraceous volatile oil, resembling stearoptene. Viertelj. Ph. xvi. 50.

EUPHORBIACEÆ.

Petalostigma quadriloculare. The bark of this Australian plant, discovered by Dr. Ferd. Müller, of Melbourne, has been analyzed by Falco. It comes in pieces five to twelve inches long, two to three inches wide, and two to three lines thick, has an uneven torn surface of a brown color, and a weak camphoraceous odor. It consists of the inner and outer bark, of which the former has a very permanent bitter taste. By analysis, the author determined 1, a camphoraceous volatile oil; 2, an indifferent bitter principle (glucoside); 3, tannic acid; 4, citric acid; 5, oxalic acid; 6, wax; 7, resin; 8, starch; 9, sugar; 10, gum. Viertelj. Ph. xv. 509.

Ricinus communis. Mr. H. Grove describes the method pursued in Italy in the culture of the castor oil plant, and the preparation of the oil. He ascribes the peculiar blandness and brilliancy of the oil not only to careful preparation, but also to climatic influence and mode of cultivation. Ph. J. Trans. viii. A. J. Ph. xxxix. 57.

Croton humidis. The stem of this plant possesses much acrid pungency, and is used in Jamaica frequently as a stimulant in relaxed sore throat. Brit. Ph. Conf. 1866. Ph. J. Trans. viii. 222.

URTICACEÆ.

Urtica dioica. Mr. B. Shoemaker, Jr., believes the diuretic properties of the stinging nettle to be dependent on a volatile oil. It does not appear that he has isolated the volatile oil, but he bases his observations on the distillate obtained. Besides the diuretic principle, the herb contains two resins, starch, gum, albumen and sugar. A. J. Ph. xxxviii. 492.

Humulus lupulus. A narrative of a visit to the Sussex hop districts, by A. W. Smith, will be found in A. J. Ph. xxxix. 77. The mode of gathering, drying, and otherwise preparing hops for the market is described, and will be read with interest.

Antiaris toxicaria. This tree, known as the *Siren broni*, yields, according to Van Leent, the *Siren poison* with which the natives of Borneo prepare their poison arrows. It abounds in the mountainous regions, and attains gigantic proportions. The poison is obtained by making incisions in the tree, from which it flows in the form of a white milky juice, which, on exposure to the atmosphere, becomes brown. It is prepared for use by mixing it with various other vegetable substances, some of which are highly poisonous, and intensify its poisonous qualities. N. Rep. xv. 263.

Castilloa elastica (Cero). The ule, a handsome tree growing abundantly in the neighborhood of Vera Cruz, yields a milky caoutchouc-like juice, from which candles may be made which furnish an excellent light. N. Rep. xvi. 241.

CONIFERÆ.

Dacrydium cupressinum (Sol.), an indigenous tree of New Zealand, yields a resin which is used for preparing a copal-like varnish. It is distributed quite extensively throughout the island, forming large forests. Although the resin has not yet found its way into our markets, it may sooner or later become an article of great importance. N. Jahr. Ph. xxvii. 26.

Damara australis. According to Professor Henkel, this tree, which yields the *G. kauri*, is distributed quite extensively throughout the greater portion of New Zealand. The fresh resin, which is obtained partly by natural exudation, partly by incision, has no commercial value. All gum kauri that is brought into commerce is dug up by the natives from deposits produced by former conflagrations in the kauri forests. It is used for preparing a copal-like varnish, and, in combination with fats, it is used and valued highly for making candles. N. Jahr. Ph. xxvii. 24.

ORCHIDACEÆ.

Angræcum fragrans (Thouars). The prepared leaves of this

plant are beginning to be used in France considerably, in place of tea, under the name of *Fahani*, and are said to possess many advantages over it. In taste it differs greatly from tea, but it is preferred by many who have tasted it, and its aroma is said to be most delicate. It combines the tonic and digestive qualities of tea, without its narcotic effect. It is prepared on the Isles de Bourbon and Réunion. A. D. Cir. x. 199.

Cypripedium pubescens, according to H. C. Blair, contains volatile oil, volatile acid, tannic acid, gallic acid, gum, glucose and starch. A. J. Ph. xxxviii. 494.

AMARYLLIDACEÆ.

Agave americana yields the gum of magney of commerce, which is very closely allied in properties to gum arabic. The plant is noted for yielding a saccharine fluid, from which the *liquor pulque* of the Mexicans is prepared. A. J. Ph. xxxviii. 503.

IRIDACEÆ.

Crocus sativus. Mr. Charles Heinitsch read an interesting paper on the culture of saffron in Pennsylvania. Proc. Am. Ph. A. 1866, 254.

M. Lade has met with a sample of saffron which contained over 50 per cent. of santalum and dragon's blood. Viertelj. Ph. xvi. 108.

Mr. Henry Biroth has examined three different samples of saffron, sold as genuine, and found them to contain respectively 55, 42, and 37 per cent. genuine saffron, the rest being made up mostly with the floral rays of *Calendula officinalis*. He questions the propriety that the revisors of the Pharmacopœia should retain this drug in preparations, thus compelling the pharmacists to use a drug which, on account of its high price, is almost always adulterated, and, moreover, is generally conceded to possess but little value as a remedial agent. A. J. Ph. xxxix. 307.

LILIACEÆ.

Phormium tenax. A peculiar gummy product is formed at the base of the leaves of this plant, which is gradually becoming important, as it can be used as a substitute for gum arabic. The

plant furnishes the New Zealand flax, and the gum might be obtained cheaply as a by-product. N. Jah. Ph. xxvii. 26.

MELANTHACEÆ.

Asagræa officinale. Guibourt throws some further light on the source of the sabadilla of commerce. He inclines to the belief that it is obtained only from *Asagræa officinale*, notwithstanding Schaffner's assertion that the capsules of two plants of the order Scrophulariaceæ (*Chelone gentianoides* and *C. campanulata*) are used as sophistications. M. Lucien Biart asserts that the activity of sabadilla resides in the capsules only, the seeds being inert. A. J. Ph. xxxviii. 498.

GRAMINACEÆ.

Saccharum officinarum. The diseases of sugar cane caused by insects engrossed the attention of the Royal Society of Mauritius at a recent meeting. It is stated that the principal cause of the disease is a larva belonging to the genus *lamia*, and a caterpillar (*Borer saccharatum*). The chairman recommended, as a remedial measure, the fostering of various insectivorous birds. A. D. Cir. x. 258.

Sorghum saccharatum. Beautiful dyes for cotton, woollen and silk fabrics may be prepared from the seed of the Chinese sugar cane, according to Dr. Erni. The dye is prepared by simply boiling the seed with a dilute acid, and is fixed on the stuffs, according to the color desired, by mur. tin, bichrom. potass., sulph. copper, ammonia, lime water, &c. All the various shades of red, purple, gray, orange, &c., may be obtained. The stalks will also yield the dye by fermentation. A. D. Cir. x. 211.

Triticum hybernium. Church has made some interesting experiments on the composition of wheat grain, and finds well dressed wheat to be composed of 3 forms in the same sample, viz., translucent, medium translucent and opaque. By his experiments in these different forms he arrived at the following conclusions:—

1. The translucent grains contain much more nitrogen than the opaque, but contain the same percentage of water.
2. The translucent grains are denser than the opaque.
3. A larger proportion of the opaque than the translucent

grains germinates and fruits. Ph. J. Trans. A. J. Ph. xxxix. 168.

Dr. McCormac highly recommends the use of whole meal bread (bread including the bran), as essential to the nurture of the flesh and bones, on account of the bran gluten and bran phosphate it contains.

RHIZANTHÆ.

Lophophytum mirabile (Schott & Eudt.). This Brazilian parasite is described by Dr. Theo. Peckolt, who has analysed the root. It forms a connecting link between the vasculares and cellulares, as it closely resembles the cellulares in its general characters, growth, &c.; but, possessing regular stamens and pistils, must be classed with the vasculares. The author has determined a large number of substances in the root, among which lyphophitin, lyphophitin bitter, fixed oil, starch, tannic acid, extractive and glucose. It is employed empirically to some extent in Brazil. Ph. Zeitschr. Rus. v. 571.

FUNGI.

Agaricus bulbosus. A fatal case of poisoning by mushrooms is reported by Dr. de Loyve, which occurred in Dep. Charente Inferieur. This fungus is of an olive green color, with nearly white edges, possesses no odor or taste when young, but becomes subsequently greenish-brown, and emanates an insufferable carion odor. It is fatal in doses of 4 to 12 grammes. Viertelj. Ph. xvi. Ph. Zeitschr. Russ. vi. 113.

Amanites. The poisonous mushrooms of the order Amanites owe these poisonous properties to Amanitin, an uncrystallizable alkaloid substance, which is precipitable only by iodine and tannic acid. Dr. Letellier advises the administration of oily vomico-purgatives, followed by conc. solution of tannic acid, as the proper antidote. Ch. Cent. B. 1866, 1103.

Polyporus anthelminticus. This fungus, known under the name of than-mo and coah-mo, is used by the Burmese as a vermifuge with success, but on account of its scarcity commands a very high price. It is suggested that the *Polyporus rufescens*, a British species, may possess similar properties. Ph. J. Trans. viii. 354.

ANIMAL DRUGS.

Cantharis vesicatoria. Dragendorff has found in cantharides a volatile body which acts on the organisms like cantharidine. It exists in the distillate obtained below and at 100° C., when cantharides mixed with a small quantity of water is subjected to distillation. It possesses no acid reaction. Ph. Zeitschr. Rus. vi. 1.

The same author finds that cantharides containing, 8.178 per cent. of hygroscopic water, yielded 5.79 per cent. of ashes, containing CaO, MnO, KQ, NaO, PO₅, CO₂, SiO₃ and Cl.

Coccus cacti. Dietrich obtained from cochineal 3.211 per cent. of ashes, which had the following composition: NaCl 0.506, NaO 13.404, KO 18.630, CaO 2.404, MgO 6.437, Al₂O₃ 1.390, Fe₂O₃ 1.152, PO₅ 47.951, SiO₃ 7.923. Loss 0.127.

Hirudo medicinalis. J. Frank recommends that leeches be kept in an aquarium containing only sand, pebbles and spring water. The water must be changed once a week. He finds that they will keep better in this way than any other, his losses having been but about $\frac{1}{2}$ per cent. during an experience of 8 years. N. Jahr. Ph. xxvi.

According to a Melbourne journal, an immense number of leeches is collected by the Murray River Fishing Company annually, most of which are shipped to the United States. From 150,000 to 250,000 are collected sometimes on one trip of the Company's steamer. Ph. Trans. viii. 735.

Vitellus ovi. Daresk finds that in the yolk of eggs there exist, in considerable quantity, microscopic granules, which become colored blue by the influence of iodine, and whose form and structure exactly recalls that of starch. Ch. N. Jan. 1867, 31.

Moschus. Dr. F. A. Flückiger contributes an essay on the history of musk, which is followed up with accuracy from the earliest times to the present. N. Rep. xvi. 171.

MINERALS.

Diamonds of considerable value have been found in Hall Co., Georgia, where they were discovered by Dr. F. M. Stephenson. A. D. Cir. x. 227.

Sulphur and Borax are found in considerable quantities in Napa Valley, California. Mr. D. J. Magowan describes the localities, and the processes by which they are purified in J. of App. Ch. See also A. J. Ph. xxxix. 155.

Yttria and Phosphoric Acid are present in large amount in the new mineral called wiserine, which in composition is almost identical with the xenotime of Berzelius. Wartha, who analyzed it, finds it to contain 48·83 yttria, 35·08 phosphoric acid, and 6·59 cryst. sesquioxide of iron, numbers which correspond with the formula $3 \text{YO}, \text{PO}_3$.

Bismuth Ore, containing 5 per cent. of tellurium, is found, according to Forbes, in the Illemani, one of the highest points of the Andes, at a height of 15,000 feet above the sea. It is found in considerable quantities. Arch. Ph. cxxviii. 243.

A very rich bed of bismuth has lately been discovered in Australia; it is, however, situated too far in the interior to be of practical value at present. Ch. N. Ap. 1867.

Galena. The experiments of Dr. Percy would indicate that all galena contains not only silver but also gold. He made a large number of analyses of ores from various sources, and in all cases found these metals. The gold is, however, present in such minute quantities as not to pay extraction.

Arseniate of Zinc is the chief component of a new mineral found in Chili, which has been named adamin. It is found in yellow glistening grains, and has the following composition: AsO_3 39·95, ZnO 54·32, MnO_2 a trace, HO 4·55. J. prakt. Ch. xcvi. 508.

Native Antimonious Acid. A whitish-yellow mineral has for some time been known in Borneo, where it is found in connection with sulphide of antimony. Heretofore it has been thrown away as worthless, but has lately been discovered to consist of antimonious acid, containing 65 per cent. antimony. Ann. Ch. Pharm. cxxviii. 244.

Ruthenium and Osmium. Wöhler has analyzed a new mineral which is found attached to platinum from Borneo, and found it to contain 65·18 Ru. 3·03 Os in combination with 81·79 S. He

proposes to name it Laurit; it occurs in crystalline masses resembling crystallized oxide of iron, has a sp. gr. of a little over 6.000, is hard and brittle, and forms a powder of a dark gray color. Ann. Ch. Pharm. July, 1866.

MEDICINAL CHEMICALS.

INORGANIC COMPOUNDS.

Sulphur is used by Dr. Guibourt, of Paris, in the treatment of lead-colic with considerable success.

Sulphurous acid is highly recommended by Dr. Dewar in the treatment of various diseases, as a general purifier and disinfectant, and as a promoter to good health. His attention was first attracted to it during the cattle plague, by the increased condition of health of men and animals, subjected to its influence. Ph. J. Trans. Aug. 1866. A. J. Ph. xxxviii. 468.

Hyposulphites. Dr. Constantine Paul has employed hyposulphite of soda with success, as a disinfectant for the evacuations of cholera patients, and to correct the disagreeable odor of accouchment chambers. A. J. Med. Sc. cv. 528.

Dr. W. H. Baxter, by his observations, confirms the value of hyposulphite of soda in the treatment of malarial fevers, as first observed by Dr. Leavitt. A. D. Cir. xi. 7.

Sulphhydric acid. Several cases of poisoning by this gas are reported in Ch. N. June, 1867, two of which proved fatal. The disasters occurred to laborers in chemical works, and could perhaps have been easily avoided, if the parties having charge of the men had given them proper instructions.

Iodine. Dr. Murray recommends iodine in the treatment of leucorrhœa, and applies it by injecting a solution through a catheter with several apertures. A. D. Cir. x. 223.

The statement of Rilliet, that the air and food of the inhabitants of Paris contained minute quantities of iodine, and that to this fact may be attributed the *absence*, in that city, of a peculiar disease which he has named *iodismus*, but which prevails in all localities where the goitre is of frequent occurrence, and where there is an absence of iodine in the air and food of its inhabitants, has induced Hadler, of Zurich (where the goitre prevails, but

the peculiar disease described by Rilliet is not known), to examine the air and food in that city. Iodine could not be detected by the most delicate tests, either in the food or atmosphere. J. prakt. Ch. 99, p. 183.

Iodide of potassium is recommended in the treatment of erysipelas by Dr. N. B. Withers, who administers it in doses of 10 grains every two hours. A. D. Cir. x. 7.

Melsens recommends it as an antidote to chronic poisoning by lead, mercury and other metals. Soluble biniodides are formed (?) which pass from the organisms through the urine. Viertelj. Ph. xv. 559.

Bromine. Dr. S. S. Garrigues read an interesting paper on the production of bromine from the Saginaw brines. Proc. 1866.

Dr. S. P. Duffield notes a case of poisoning by bromine, in which the patient had become completely asphyxiated by the inhalation of its vapor, but recovered on throwing steam from a distance into his mouth and subsequently causing him to inhale steam from a kettle. A. J. Ph. xxxix. 333.

Bromide of Potassium is used with favorable results by Dr. Hutchinson in inflammatory stricture of the urethra and other forms of irritation of that organ. A. D. Cir. x. 251.

Dr. James Begbie, in an interesting paper on the therapeutic effects of this chemical, bears testimony to its value in a large class of diseases. A. J. Med. Sc. cvi.

Phosphorus. Bamberger recommends the administration of sulphate or carbonate of copper, as an antidote to poisoning by phosphorus. The stomach is first to be evacuated by a dose of sulphate of copper, and subsequently a weak solution of the salt is administered if the stomach will not reject it. If emesis continues, carbonate of copper is to be administered in 4-8 gr. doses, followed by about a tablespoonful of vinegar. The antidotal properties of the salts of copper depend on their oxidizing influence on phosphorus. P. Ph. C. H. Aug. 1866.

Nitrate of Potassa is highly recommended by Dr. Sawyer, of Hillsboro', Ills., as a remedy in the treatment of intermittent fevers, and he claims a specific action for it. The patient is not

so apt to suffer a relapse as when cured by quinine. A. D. Cir. xi. 84.

Permanganate of Potassa. Dr. Leavitt applies it locally to carbuncles, and has used it with beneficial effects in a large number of cases.

Chloride of sodium. Dr. Dervandre advocates its application to suppurating wounds, and states that it causes an immediate disappearance of bad odor, and that the suppuration diminishes rapidly, becomes healthy in a few days, while at the same time it has the most happy effect in the system, the patient regaining appetite and strength. A. D. Cir. x. 235.

Hydrated silicate of Magnesia (Meerschauum) in fine powder is recommended by Garraud as a substitute for subnitrate of bismuth in epidemic or obstinate forms of diarrhoea. It acts probably by its absorbent properties, and is administered in doses of 4-10 gram. daily suspended in water. Ph. C. H. July, 1866.

Chromic Acid. Dr. Haison bears testimony to the advantages derivable from the use of chromic acid in various forms of syphilitic vegetation. A. D. Cir. x. 250.

Nitrate of Lead is employed locally with success by M. Moerloen, in the treatment of onyxia, which frequently assumes a very rebellious form in scrophulous infants. No case, however rebellious, has hitherto resisted its application. A. D. Cir. xi. 165.

Corrosive sublimate is recommended by M. Lecleres as a local application for the removal of the patches of discoloration which appear on the skin of syphilitic patients. He proposes a lotion of 50 centigram. corrosive sublimate in 15 gram. collodion. A. D. Cir. x. 223.

ORGANIC COMPOUNDS.

Organic Acids.

Citric Acid. Citrate of soda is proposed in the treatment of diabetes to supply the alkaline carbonate necessary to the chemical change of glucose. Ph. J. Traps. viii. 176.

Creasote is recommended by Dr. B. W. Richardson in certain forms of diarrhoea. A. D. Cir. x. 251.

Carbolic Acid is frequently adulterated with coal oil. To test its purity it is recommended to shake a fluidounce with half a litre of warm water occasionally for half an hour, when if pure it will all be dissolved; 5 parts of the acid, 10 parts water and 1 part caustic soda are shaken together, and a clear solution formed if the acid is pure. If coal oil is present, it will remain undissolved and is readily estimated. Ph. C. H.

Oxalic Acid. Oxalate of iron is recommended by Reynolds as a tonic, preferable in many respects to the tartrates and citrates of iron. Ph. J. Trans. viii. A. J. Ph. xxxix. 125.

Castile Soap. Vock notices a sample of castile soap, not distinguishable by physical appearance from the best article, which contained 29 per cent. of carbonate of lime. Viertelj. Ph. xvi. 110.

Organic Alkalies.

Narceina, according to M. Linné, possesses the strongest narcotic power of all the alkaloids of opium. It diminishes pain, suppresses the flow of urine, and causes relaxation, instead of constipation of the bowels. A. D. Cir. x. 234.

Strychnia. Cannabis indica has been used with success as an antidote to poisoning by strychnia, by Dr. S. A. McWilliams, of Chicago. When the symptoms abated, the treatment was alternated with tincture of camphor. A. J. Ph. xxxix. 554.

Sulphate of Beeberina. Dr. A. P. Merrill, in Med. Record, highly recommends the use of this salt in various forms of uterine diseases, among which dysmenorrhœa, excessive menstruation, leucorrhœa, &c. A. D. Cir. xi. 165.

Starch, Sugar and allied Compounds.

Arrow root. M. Albers suggests, as a test for the adulteration of arrow-root with potato starch, a mixture of 2 p. H Cl, sp. gr. 1.120, and 1 p. water. If a small portion of the suspected arrow-root be mixed with this test liquid, it will undergo no immediate change if pure, but if potato starch is present, it will in a short time become converted into a gelatinous mass.

Chloroform. Dr. E. McClellan has used chloroform with success in the treatment of intermittent fever. The cold stages yielded

to its use, and the hot stages were modified by its action. A. J. Med. Sc. cvi. 370.

Brandy and Whiskey. Professor J. M. Maisch furnishes some interesting statistics on the examination of brandies and whiskies instituted by him at the U. S. Laboratory in Philadelphia, and also some valuable information relating to assays of

Sherry Wines, at the same institution. Proc. A. Ph. A. 1866, 267, 269.

Red Wines. A. Phillip proposes sesquichloride of iron as a test for red wines, which will cause a brown coloration if the wine is genuine, but if colored with cherry or whortleberry juice, or infusion of malva, a violet color will be produced. Ch. C. B. 1866, 528.

Oils, Resins, &c.

Volatile Oils. Oil of *Erigeron canadensis* is recommended by Dr. J. S. Prettyman, of Milford, Del., as a remedy for gonorrhœa. A. D. Cir. x. 178.

Fixed Oils. Dr. A. C. Oudemans, Jr., has examined the fixed oils and fats of various East India palms, and gives their properties and composition in J. Prakt. Ch. 100, 425. Among these the oils of *Ceretera theotica*, *C. odollam*, *Samadera indica*, *Gossampinus albus* (*Bombax pentandra*), *Brucea sumatrana*, and *Calophyllum inophyllum* are considered.

Oil of Almonds is frequently adulterated with oil of apricots in the south of France. The latter may be separated, according to J. Nicklès, by treating the suspected oil with powdered hydrate of lime, with which the oil of apricots forms an emulsion of the consistence of ointment, leaving the oil of almonds unaffected. Hemp-seed, poppy, nut and linseed oils are affected like oil of apricots; cotton-seed oil but slightly; olive oil not at all. Ch. C. B. 1866, 557.

Acroleine was discovered by Buchner in 1825, who named it *pineline*. According to Wittstein, Brandes and Redtenbacher, who are often mentioned as the discoverers, did not prepare it until ten or twelve years later. Viertelj. Ph. xv. 443.

Resins. For an interesting account of the geographical dis-

tribution and collection of gum copal in Africa, see a paper by Dr. Wellwitsch A. J. Ph. xxxviii. 439. The author regards the drug as a fossil resin, produced by trees in long past periods, but which are now either extinct or exist only as shrubs. The principal source of the African gum is along the coast of Angola, western tropical Africa, from whence 1,600,000 pounds have been exported between 1850 and 1860.

Schapringer proposes a test for *shellac*, which is dependent on the fact that the red coloring matter peculiar to it is soluble in mineral or organic acids with a red color, which, by supersaturation with an alkali, becomes a violet. Viertelj. Ph. xvi. 109.

White Wax is adulterated frequently with paraffine. When thus adulterated, its melting point is lower than 60° C., and if treated with solution of caustic alkali, evaporated to dryness, and shaken with ether, the latter will yield the paraffine, which is not affected by alkalies.

Paraffine. The discovery of this substance has been generally credited to Reichenbach. According to Wittstein, the late Dr. J. A. Buchner discovered it in 1820,—ten years before Reichenbach mentions it. Buchner named it *Berg fett* (mountain fat), and describes its properties very accurately. Viertelj. Ph. July, 1866, 443.

INORGANIC CHEMISTRY.

OXYGEN.

Preparation. Dr. Winkler proposes the use of milk of lime, chloride of cobalt, and chlorine, as economical and practical agents for the production of oxygen. When chloride of cobalt is brought in contact with milk of lime, chloride of calcium is formed, and oxide of cobalt precipitated; if chlorine gas is now introduced, the oxide is converted into cobaltic acid, which, combining with a portion of the lime, is decomposed again into oxide of cobalt, with elimination of oxygen, by the further introduction of chlorine. The same amount of oxide of cobalt will decompose an indefinite amount of lime. The process has the advantage

over that of Fleitmann (in which chlorinated lime is used), that a much smaller vessel may be used, and there is no danger of frothing over. J. Prakt. Ch. xviii. 342.

A process has been patented in England, by which the oxygen is obtained from atmospheric air by the agency of permanganates, ferrates or chromates. The salt is heated in an iron retort, and steam passed through, which will liberate the oxygen; as soon as oxygen ceases to be given off, atmospheric air is passed through, when it will return to its normal condition. The process is said to be carried on in France successfully, and recommends itself for its economy, the expense amounting only to the first outlay for the salt, and to the fuel consumed. A. D. Cir. x. 247.

Carlevaris prepares oxygen economically by heating a mixture of peroxide of manganese and silica to redness; the residue consists of silicate of manganese. 100 gram. peroxide of manganese and 400 gram. sand yield 7 litres oxygen. Viertelj. Ph. xvi. 125. Ch. C. B. 1867, 383.

Ozone. G. Plante finds that the production of ozone by electrolysis is doubled when poles of lead are used instead of poles of platinum. Heretofore the production of ozone by electrolysis had only succeeded with the use of the unoxidizable metals,—gold, platinum, &c. A. D. Cir. x. 251. Ch. C. B. 1866, 1072.

HYDROGEN.

Action of Hydrogen on Metallic Salts. When hydrogen is passed through solutions of a salt of platinum or palladium, the metals are precipitated. Solutions of silver salts are affected but slightly; nitrate and bichloride of mercury are not affected under the ordinary pressure of the atmosphere, but when the pressure is increased to 100 the mercury is precipitated in the metallic state in the course of 24 hours. Iridium and gold solutions are not affected at all; solution of sesquichloride of iron will show traces of protochloride of iron at the end of a few days. Viertelj. Ph. July, 1866.

Action of Hydrogen on Metallic Oxides. The property of hydrogen in the presence of steam to reduce protoxide of iron to the metallic state, or oxidize metallic iron to the state of protox-

ide, according to the preponderance of one or the other of the gases, has induced Müller to ascertain if there exists a point of indifference in the action of the gases. He finds that such a point does exist, the requirements being that the gases are in certain proportion and at a certain temperature. Ch. C. B. 1867, 45.

Water. Absolutely pure water is obtained, according to Stas, if water is treated with solution of manganate of potassa, decanted from the precipitate, and then distilled with a mixture of manganate and caustic potassa, rejecting the first one-twentieth that passes over. Ch. N. April, 1867, 204.

Binoxide of Hydrogen. Schoenbein proves that binoxide of hydrogen is not so readily decomposed as has been generally supposed, and that portions of it will distill undecomposed. J. prakt. Ch. xcvi. 65.

NITROGEN.

Nitrous Acid. Stahlschmidt remarks the improvement in the use of zinc in the form of powder instead of wire, in the reduction of alkaline nitrates to nitrites. (See also Zinc in this report). Ch. N. April, 1867, 194.

Nitric Acid. Kolb has determined the sp. gr. of nitric acid of different degrees of hydration, and has prepared a new and very complete table, for which see Ch. C. B. 1866, 1023.

Braun recommends sulphate of aniline as the most delicate reagent for nitric acid. With traces of nitric acid, it gives a beautiful red color; when the acid is present in larger quantity, it gives a brown-red or brown-yellow color, according to proportion. The test is subject to the same objection, however, as the indigo test, that nitrous acid produces the same reaction. Ch. C. B. 1867, 395.

SULPHUR.

Sulphur and its Compounds. An extract from an interesting lecture, by Dr. Percy, on this subject, will be found in Dent. Cos. viii. 285, from Ch. N.

Sulphhydric Acid. An economical source is suggested by Reinsch, who prepares for this purpose sulphide of calcium, by mixing intimately 1 p. common gypsum, $\frac{1}{2}$ p. burned gypsum,

$\frac{1}{2}$ p. coal (all in powder), and forming with water into small masses, which after drying are heated, for two hours, in a wind furnace, with coke. The product is kept carefully excluded from dampness, and will readily yield perfectly pure sulphhydric acid, by the aid of chlorhydric acid. Ph. C. H. July, 1866.

M. Lapage, of Gisors, states that when a mixture of equal parts of glycerine and water is saturated with sulphhydric acid, the solution will keep for a long time without change, and none of its reactions are interfered with in the least. The dilute glycerine dissolves less HS than water, the relation being as 6 to 10. Ch. N. May, 1867. A. J. Ph. xxxix. 368.

Sulphuric Acid. According to R. Weber's experience and researches, it would appear that the nitric acid, after its reduction to NO_2 in the *sulphuric acid chambers*, is not converted into NO_4 , but chiefly into NO_3 . The conversion of NO_4 into NO_3 during the process of deoxidation of HO, according to the theory of Peligot, he regards as impossible. Viertelj. Ph. xvi. 127.

In some further remarks on the same subject the author states that a source of loss of nitric acid in the chambers must be attributed to the formation of nitrous oxide; for he found that nitrous acid, in presence of minutely divided condensed water and excess of sulphurous acid, was reduced to NO , in which form it is lost to further utilization. These conditions are frequently observed in badly working chambers. Ch. C. B. 1867, 325.

Mr. Wm. Skey recommends for the removal of nitric acid from sulphuric acid, that it be diluted, shaken with a little freshly burned charcoal, and filtered. Under these conditions the NO_2 will be removed most completely; from conc. sulph. acid the NO_3 cannot be removed by this means. Ph. J. Tr. A. J. Ph. xxxix. 67.

Sulphuric acid, in combination with alkalis, is best estimated by titration, according to Gräger, as follows: Convert the sulphate into chloride by means of chloride of barium, and digest the solution with carbonate of silver, which will leave the alkalis only in solution as carbonates. By titration their quantity is readily obtained, and from the results the amount of acid easily

calculated. The presence of free alkalies or chlorides necessitates that they be determined first, but does not otherwise interfere with the accuracy of the results. N. Jahr. Ph. xxvii. 65.

Chloride of Sulphur, according to Baudrimont, attacks all metals whose chlorides are volatile, with vehemence, while those that do not form volatile chlorides are not attacked even at a boiling temperature. The sulphur is precipitated, and chloride of the metal formed, except in the case of aluminium, with which it forms a double chloride of aluminium and sulphur. Comp. Rend. J. prakt. Ch. ci. 46.

SELENIUM.

Selenic Acid. Hauer has obtained a new double salt by saturating selenic acid, containing selenate of potassa, with selenate of cadmium. The composition of this compound is $\text{KO}, \text{SeO}_3, + \text{CdO}, \text{SeO}_3, + \text{HO}$. It forms colorless crystals, which are permanent in the air and may be recrystallized without decomposition. The amount of water of crystallization remains constant whether it be crystallized at a high or low temperature. Ch. C. B. 1867, 63.

Iodide of Selenium. R. Schneider has prepared the compounds $\text{Se}_2 \text{I}$ and $\text{Se}_2 \text{I}_4$. They are very unstable compounds, very readily decomposed, especially in solution. When treated with sulphide of carbon, chloroform, alcohol, hydriodic acid, &c., the iodine is dissolved out, leaving the selenium intact. Ch. C. B., 1868, 331.

CHLORINE.

Chloric Acid. Toussaint recommends that chloric acid be determined quantitatively by adding an excess of nitrite of lead to its solution, acidulated with nitric acid. The chloric is converted into chlorhydric acid, which is readily estimated by nitrate of silver. Ph. Zeitschr. Rus. July, 1866, 179.

IODINE.

Morinde proposes a new process for its extraction from sea weeds, as also for the extraction of bromine, for which see Comp. Rend. t. 62. N. Jahr. Ph. xxvi. 218.

Kohler states that one gramme of iodine is soluble in 450 gram. water, containing 3.29 gram. tannic acid. At a temp. higher than ordinary, less tannic acid will answer. A. J. Ph. xxxix. 181.

A very delicate test for the presence of iodine is proposed by M. Carey Lea. It consists in adding to the suspected liquid after the addition of solution of starch and nitric or chlorhydric acid, a little bichromate of potassa. The bichromate will bring out the blue color at once, long after starch alone will have ceased to produce the effect. A distinct blue color is produced when 100000 of a grain of iodine is present; above that a tawny precipitate or coloration is produced up to a dilution of 500000. The tawny color is distinctive of iodine. A. J. Ph. xxxviii. 445.

Periodic Acid. The basity of this acid still occupies the attention of chemists, but no satisfactory results have as yet been obtained. The results of Lautsch would indicate that it is tribasic, but pentatomic. J. prakt. Ch. c. p. 65.

F. W. Fernlund's experiments indicate its tribasic character. J. prakt. Ch. c., p. 90.

Terchloride of Iodine. By the reaction between this compound and sulphide of carbon, R. Weber has obtained a new crystalline compound of the composition $\text{ICl}_3 + 2\text{SCl}_2$. It is obtained in the form of orange red, flat prisms, very deliquescent, decomposed by water, but soluble in nitric acid. Ch. C. B. 1866, 988.

PHOSPHORUS.

Crystallization. Hitterf has obtained phosphorus in crystals, by heating together phosphorus and lead in a sealed glass tube. It forms plates of a black color with metallic lustre, and they retain their form when melted. Viertelj. Ph. xv. 576.

Dr. A. Vogel, Jr., recommends a modification of Blondlot's process for crystallizing phosphorus. A small stick of perfectly dry phosphorus is introduced into a combustion tube, which is then sealed. As soon as white vapors cease to be given off (from the action of air in the tube), the tube is dipped into warm water until the phosphorus has melted. In the course of a few hours crystals begin to form immediately above the surface of the

phosphorus and continue to be formed for some time after the phosphorus has again solidified. This would indicate that phosphorus is volatile far below its melting point when O is absent. N. Rep. xvi. 68.

Phosphorescence. Dr. Werner Schmid states that the phenomenon of light produced by phosphorus vapor is owing to a process of oxidation only. No phosphorescence is produced in perfectly pure hydrogen, but if a trace of O is present, the vapor becomes luminous. Phosphorus vaporizes in all gases at ordinary temperatures; it is oxidized by O without the agency of water. J. prakt. Ch. xcviii. p. 414.

Hydride of Phosphorus. Rudorff has determined that the yellow powder deposited in aqueous solutions of biniodide of phosphorus on standing, is not more or less modified phosphorus as has been heretofore supposed, but hydride of phosphorus, as it possesses all the characteristics of that compound. He considers it the most simple and expeditious source of hydride, and states that it is deposited most readily when the solution of biniodide is heated. Ch. N. March, 1867, 136.

Phosphoretted Hydrogen. Gerding gives a simplified process for preparing phosphide of calcium in admixture with phosphate of lime, with reference to the elimination of HP for experimental purposes. N. Jahrb. Ph. xxvi. 159.

Phosphoric Acid. J. Watts has prepared a very complete table of the sp. gr. of aqueous solutions of phosphoric acid of different strength. He found by experiment that oxide of lead is the most accurate reagent for the quantitative determination of the acid, in every respect superior to oxide of zinc or magnesia, or to titration with oxide of uranium. J. prakt. Ch. ci. p. 58.

C. L. Diehl gives some suggestions on the manipulation in the manufacture of dilute phosphoric acid. Proc. A. Ph. A. 1866, 248.

R. Bender recommends molybdate of ammonia as a very accurate reagent for this acid in quantitative analysis. Ph. C. H. July, 1866.

Phosphates, when mixed with oxide of iron, alumina and lime, as in soil, manure, &c., are determined by Brazier by applying

the solvent power of citric acid as proposed by Warrington. A solution in chlorhydric acid is precipitated by ammonia, and the precipitate treated with citric acid, which dissolves out the phosphates; the addition of chloride of magnesium will precipitate all the PO_4 , which may thus be quantitatively determined. *An. de Chem. Phys.* Ch. C. B. 1866, 703.

Phosphorous Acid. C. Rammelsberg has continued his experiments on phosphorous acid and its salts, and finds that the salts of Zn, Co, Mn, Pb, Cu, Fe_2O_3 , and of the alkalis, contain one atom of water of combination, while those of Ba, Sr, Ca, Mg and Ni, contain two atoms. Ch. C. B. 1867, 426.

Chlorosulphide of Phosphorus. M. Chevrier has prepared this compound by adding to boiling chloride of sulphur (SCl) small fragments of P in the proportion of one equivalent. The reaction is exemplified by the following equation: $3 (\text{SCl}) + \text{P} = (\text{PCl}_3, \text{S}) + 2 \text{S}$. Ch. N. Jan. 1867, p. 5.

BORON.

Boric Acid, according to Merz, forms a definite compound with sulphuric acid, of the composition $5\text{BoO}_3, 2\text{SO}_3 + 2\text{HO}$. As obtained by him, it is in the form of a glassy mass, decomposed only by a red heat.

Borax is now prepared in England on a large scale, by heating boric acid with soda ash in a reverberatory furnace, the process being similar to the preparation of sal soda from salt cake. A. D. Cir. xi. 34.

SILICIUM.

Silicic Acid. The solubility of anhydrous silica in solution of ammonia, sp. gr. .960, has been accidentally discovered by Wittstein, during a mineral analysis. Calcined silica or quartz sand are equally affected by ammoniacal liquor. Heretofore the solubility of the hydrate only had been determined. *Viertelj. Ph.* xv. 534.

Hydrates of Silicic Acid. These are numerous and vary considerably in their constitution according to different authorities. Merz has examined the subject carefully and obtained results which correspond with those of Fuchs. According to this

authority the following hydrates exist: HO, SiO_3 ; $\text{HO, SiO}_3 + \text{SiO}_3$; $\text{HO, SiO}_3 + 2 \text{SiO}_3$; $\text{HO, SiO}_3 + 3 \text{SiO}_3$; $\text{HO, SiO}_3 + 7 \text{SiO}_3$. J. prakt. Ch. xcix. 177.

Silicates. Haushofer has obtained a number of new silicates of the earths and metals, by the addition of silicate of potassa to solutions of their salts. J. Prakt. Ch. xcix. 241.

CARBON.

Charcoal. It is stated (in A. D. Cir. xi. 147) that charcoal prepared from cocoanut shells has been found to exert the power of absorbing gases to a greater extent than when made from any known wood. It is very dense and brittle, and the pores are quite invisible.

Dr. F. C. Calvert, in a paper to the Chem. Society, on oxidation by means of charcoal, states that he found that quite a number of gaseous substances are readily oxidized by its influence in the presence of oxygen. He advances the theory that, like spongy platinum, it has the power of liquefying gases within its pores. Ch. News, April, 1867, 183.

Graphite. Winkler proposes its purification by heating to moderate redness with 100 to 200 per cent. of a mixture of equal parts of sulphur and soda, until the blue flame appearing on top of the crucible has changed to yellow. On cooling, it is to be boiled in water and washed by decantation; it is then treated with dilute chlorhydric acid to separate iron, and after again thoroughly washing it with caustic soda to separate a small portion of silica remaining. Graphite purified in this way left no ashes when burned. J. Prakt. Ch. xcvi. 344.

Diamond. A correspondent of the Mech. Mag. claims to have succeeded in making artificial diamonds (as yet but minute), by the action of a continuous electric current on carbonic acid. A. D. Cir. x. 247.

Sulphides of Carbon. Loew describes a body, C_8S_2 , which he obtains by acting on acetic acid with persulphide of phosphorus; it is insoluble in bisulphide of carbon, but dissolves with a red color in concentrated sulphuric acid. Ch. N. March, 1867, 134.

Bisulphide of Carbon. Its solvent powers have been the sub-

ject of investigation by Gore, who finds it to dissolve readily the chlorides, bromides and iodides of phosphorus, arsenic, antimony, sulphur and selenium. Metals are not dissolved by it, but have a tendency to abstract a portion of its sulphur. J. Prakt. Ch. xcvi. 238.

Bichloride of Carbon is recommended to be prepared for anæsthetic purposes by passing a stream of chlorine through chloroform heated to from 40° to 50° C. The distillate produced is refrigerated properly, and returned to the still until the reaction is complete. Ph. C. H. Sept. 1866, 369.

ALKALIES.

According to Hunter, the sulphates of soda and potassa are decomposed by the action of caustic lime under pressure. On the basis of this fact the manufacture of alkalies is said to be already carried on in England, on a large scale. The amount of pressure required depends on the condition of the sulphates and lime used, the temperature and strength of the solution, and the time in which it is to be finished. The potash salt requires a greater pressure than soda salt. Good results are obtained with sulphate of soda when a solution of sp. gr. 1.100 is boiled with lime under a pressure of 40 to 45 pounds, and with a solution of potash salt of the same sp. gr., under a pressure of 80 to 90 lbs. Ch. C. B. 1866, 975.

R. Finkner proposes a method for separating potassa from soda salts, for which refer to Ch. N. Aug. 5, 1867.

Debray prefers phosphomolybdic acid to its soda salt for the detection of alkalies, all of which form precipitates with it. It will readily detect $\frac{1}{500}$ per cent. of potassa. J. Prakt. Ch. c. 64.

A simplified process for preparing the alkalies with a view to their determination by spectral analysis, is given by Belohoubeck in J. Prakt. Ch. xcix. 235. It consists substantially in their precipitation as fluosilicates by hydrofluosilicic acid and alcohol. In this combination the colored flame will permit of more decided observation.

M. Tessie du Mothay has succeeded in manufacturing economi-

cally the alkalies from their chlorine and sulphuric acid compounds, by the aid of fluosilicic acid, and has applied the process on a large scale. It is spoken of in the highest terms, and is perhaps calculated to revolutionize the processes of their manufacture. Ch. N. May 10, 1867.

Mr. James Hargreaves, in Ch. N. May 3d and 10th, 1867, draws attention to the sources of waste in the manufacture of alkalies, and to the methods by which, to some extent, this can be avoided. The waste often amounts to 20 per cent. of the theoretical quantity of alkali contained, and generally ranges from 10 per cent. upwards.

For some interesting remarks on the sources and manufacture of alkalies, by F. C. Reynolds, see A. D. Cir. xi. 160.

POTASSIUM.

Iodide of Potassium. Payen finds that, as found in the markets, it is seldom pure, containing generally an excess of carbonate of potassa and free iodine. He recommends its purification by treatment with hydriodic acid, and removal of excess of acid by sulphhydric acid, which precipitates the iodine.* The author discusses its relation to starch at some length. J. prakt. Ch.

Potassa. Meunier has studied its relation in the melted state to metallic oxides, and finds it to be capable of taking up small quantities of oxide of mercury, forming, when the temperature has not been too high or too long continued, a violet compound. This, when freed from excess of alkali, was found to have a composition corresponding very closely to $\text{KO}, 2\text{HgO}$, the alkali being slightly in preponderance. It is also capable of taking up oxide of bismuth, forming a colorless compound while melted, which becomes brown when solidification takes place. When freed from alkali by washing, an amorphous powder, resembling superoxide of lead, remains, which the author supposes to be the Bi_2O_4 of Arppe. Experiments were made with other metals, and with caustic soda on the same, for an account of which see J. Prakt. Ch. xcvi. 218.

Nitrate of Potassa. Gräber recommends the manufacture of

* Evidently an error, for HS produces HI by the action on iodine.

this salt from soda saltpetre, by heating it with solution of caustic potassa. About 75 per cent. of potassa saltpetre can be crystallized out. The mother liquors, containing caustic soda and the balance of the potassa salt, are used for the manufacture of soap, by which process the potassa nitre remains in the brine, from which it is readily purified by crystallization. Arch. Ph. July and August, 1866, 135.

Nitrite of Potassa is prepared conveniently, according to Erdmann, by heating nitre with several times its weight of iron filings to a moderate red heat, at which it is kept until a small portion of it, when dissolved in water and filtered, will give off copious fumes of nitrous acid on the addition of sulphuric acid. It is then dissolved in water, filtered, concentrated to separate any remaining nitrate, and treated with nitrous acid gas in excess, after which it is evaporated to dryness. Ch. C. B. 1866, 624.

Wöhler states that this salt is formed when ammonia is decomposed by permanganate of potassa. A. J. Ph. xxxviii. 474.

SODIUM.

Nitrate of Soda. Maumené has prepared a table of the solubility of this salt at different temperatures, for which see Arch. Ph. July and August, 1866, p. 136.

Nitrite of Soda is prepared by Warrington by mixing 7 parts dry soda saltpetre in fine powder with 1 part starch, and subjecting it to a heat in a flat iron dish, adding small portions at a time. The mass begins to froth, gives off vapor, melts and at last becomes white, when it is done. Viertelj. Ph. xvi. 126.

Sulphate Soda. Dr. Lindig found that, when this salt crystallized from its solution, the volume, instead of decreasing, was increased, showing that the sp. gr. of the salt is less than that of the solution from which it crystallized. If a saturated solution be cooled to 0°C. and then caused to crystallize suddenly, a great increase in bulk will recur and continue to 10°C, showing an anomaly like the solidification of water.

AMMONIUM.

Ammonia. The quantitative determination of ammonia in

organic substances by means of potassa, soda, baryta or lime is, according to Vogel, liable to incorrect results, owing to the readiness with which these alkalies and alkaline earths decompose azotized substances and form ammonia. Magnesia is, according to the author's experiments, the most suitable. N. Rep. xv. 489, Ch. C. B. Jan. 1867, 60.

If a piece of copper is dissolved in liquid ammonia, a solvent is formed which will readily dissolve silk or wool. A. D. Cir. x. 246.

Sulphide of Ammonium. Spence proposes its manufacture on a large scale, by passing steam through a mixture of an ammonia salt and soda waste or gas lime. The vapor condensed in a suitable apparatus is the sulphide of good quality and strength. Ch. N. Dec. 1866, 272.

Chloride of Ammonium. Stas gives a process which insures perfectly pure chloride from commercial chloride or sulphate. Ch. News, April, 1867, 194.

Iodide of Ammonium. Mr. J. F. Babcock presented a paper on the preparation of this salt to the Association at the last meeting. Proc. A. Ph. A. 1866, p. 245.

BARIUM.

Reutling states that most of the commercial salts of baryta contains a considerable proportion of magnesia, and thinks that none of them are entirely free from it. N. Jahr. Ph. xxvi. 170.

CALCIUM.

Sulphide of Calcium. Reinsch gives a process for preparing impure sulphide of calcium, for preparing HS. See sulphhydric acid in this report.

Phosphide of Calcium. Gerding prepares this compound sufficiently pure for eliminating phosphide of hydrogen for experimental purposes, by heating lime in a Hessian crucible, and adding from time to time small portions of phosphorus, stirring well and covering after each addition, until, on taking off the cover, a blue flame appears on the surface and remains for fifteen

minutes, when occasionally stirred. It must be kept in an accurately stopped bottle. N. Jahr. Ph. xxvi. 159.

Fluoride of Calcium in solution with chlorhydric acid, may be used for engraving on glass in place of hydrofluosilicic acid, avoiding thereby the danger attending the use of the latter. A. D. Cir. x. 257.

Lime. According to Daubrawa, freshly burned lime, when treated with water added fractionally, will be converted into $3\text{CaO} + 2\text{HO}$, if the water is only added as long as the lime will absorb it with avidity. When freshly burned lime is exposed to the atmosphere, the compound $2\text{CaO} + \text{CO}_2 + \text{HO}$ is formed; but by long continued exposure, the HO is very slowly substituted by CO_2 . Neutral carbonate of lime, when calcined in an open crucible, will give off CO_2 until the compound $2\text{CaO} + \text{CO}_2$ is formed. When the latter is heated in a covered crucible it will continue to give CO_2 until the compound $5\text{CaO} + \text{CO}_2$ remains. Silica or steam facilitates the expulsion of CO_2 . Viertelj. Ph. xv. 562.

Soestadt proposes tungstate of soda as a reagent for lime, to separate it from magnesia, and finds the reaction exceedingly delicate, the smallest amount of lime being precipitated. Ph. Zeitschr. Russ., Aug. 1866, 245.

Carbonate of Lime. Pelouze finds that, when carbonic acid is passed for some time into lime water at a temperature of 0° to 2° C., the flocculent precipitate at first produced is converted into a heavy crystalline precipitate, containing 6 equiv. HO; at ordinary temperature this is changed with gradual loss of water. N. Rep. xv. 464.

MAGNESIUM.

Magnesium. M. Z. Roussin draws attention to the fact that magnesium will precipitate most metals from their solutions, and proposes to use it in toxicological researches for metallic poisons. Copper, zinc, lead and mercury are readily separated by precipitation, while arsenic and antimony will pass off with the hydrogen eliminated by the reaction, and are readily determined by Marsh's test. Magnesium can now be obtained perfectly pure, and having a low equivalent, and being devoid of poisonous

properties, recommends itself especially for the uses advocated by the author. Ch. N. July, 1866. A. J. Ph. xxxviii. 455.

The experiment of Mr. W. N. Hartley on the relations of magnesium to water, acids, solutions of the metals, &c., agree, with a single exception, with those of M. Roussin. Ch. M. 1867, 27. A. D. Cir. xi. 161.

Sulphite of Magnesia. J. C. Sticht prepares this salt by mixing hot saturated solutions of sulphite of soda and sulphate of magnesia, and collecting the crystalline magma produced on cooling. This, in drying, is a perfectly white preparation. From 123lb sulphite of soda he obtained 69lb sulphite of magnesia. Viertelj. Ph. xvi. 49.

Sulphate of Magnesia. Dr. R. Mirus makes some practical remarks on the manufacture of this salt from magnesite, in Arch. Ph. cxxxvii. 193.

J. H. Swindells makes some remarks on the same subject, in Ch. N. April, 1867, 178.

ALUMINIUM.

Hydrated Alumina is obtained in a fine powdery form (not gelatinous) by adding to a solution of 1 kilo. alum in 5 litres of water, 5 gram. sulphate of copper, and 250 gram. zinc scraps, and allowing it to stand for several days in a moderately warm room. The copper is precipitated upon the zinc, forming small voltaic elements; hydrogen is eliminated, sulphate of zinc formed and alumina deposited in a form in which it is readily washed. N. Jahr. Ph. xxvii. 96.

Sulphate of Alumina. Stein recommends ultramarine paper for the detection of free acid in sulphate of alumina; 0.8 per cent. of monohydrated sulphuric acid is readily detected. J. prakt. Ch. c. p. 64.

MANGANESE.

Binoxide of Manganese, according to Dr. Werner Schmid, is capable of precipitating copper from its combination with sulphuric acid, as binoxide, by simple digestion in the cold. The author is inclined to regard MnO_2 as an ozonide. J. prakt. Ch. xcvi. p. 136.

Kuhlman recovers binoxide of manganese, which is used by him to an enormous extent in the manufacture of bleaching powder, by precipitating the manganese liquors with the mother liquors of soda crystals, which contain a large percentage of sulphur compounds. Sulphide of manganese and free sulphur is precipitated, and is burned to furnish sulphurous acid. It is then heated with nitrate of soda, which results in the production of nitrous acid fumes, sulphate of soda, and oxide of manganese, containing 55 per cent. pure binoxide. A. D. Cir. xi. 34.

Permanganate of Potassa. J. C. Sticht, of Brooklyn, N. Y., prepares this salt successfully in Wöhler's proportions. 500 p. recently prepared solution of caustic soda, 45° B., is evaporated with 105 p. pure chlorate of potassa, and towards the end of the process 182 p. binoxide of manganese, in fine powder, is stirred in, and heated until the mass becomes pasty. It is then heated in a 3 gall. iron kettle until the mass becomes dark red, and assumes a semi-fluid condition, when it is treated with a large quantity of water, allowed to rest for 12 hours, the clear liquor decanted and evaporated in copper vessels, taking care not to allow it to boil. The permanganate will crystallize in long needles. The author has obtained 98 to 100 p. from the above proportions. Viertelj. Ph. July, 1866.

The powerful oxidizing action which solutions of this salt exert on mercury in the cold, induced W. B. Giles to try its effects on other metals. Zinc, which is so readily oxidized under ordinary circumstances, was not attacked even when allowed to remain in contact for months. It has likewise no action on copper, but appears to exercise a slight action on silver. Ch. N. Ap. 1867, 204.

The editor of Ch. N. adds that neither aluminium or magnesium are affected by it; thallium is affected to some extent.

Gräger proposes oxalate of protoxide of iron for the titration of permanganate of potassa, on account of its stability, and the convenience with which it may be prepared pure. The decomposition by its influence takes place as rapidly as when proto-sulphate or proto-chloride of iron is employed. N. Jahr. Ph. xxvi. 193.

Sulphate of Manganese. C. L. Diehl recommends a process for preparing this salt, by which he has obtained good results. Proc. A. Ph. A. 1866, 249.

IRON.

Iron. H. Weisky, by authority of an extensive series of experiments, concludes that all iron contains a small amount of cobalt and nickel. The samples examined by him contained, on an average, 7 gram. of these metals. He found them in various cast irons, wire nails, and wrought iron. J. prakt. Ch. xcvi. 479.

Hydrated Sesqui-oxide of Iron, according to Davis, loses nearly all its water of crystallization (hydration?) when heated in water, retaining but four to six per cent. A temperature of from 50° to 60° C. is sufficient to produce these results. J. prakt. Ch. xcvi. 250.

J. Natanson states that the reaction of sulpho-cyanide of potassium on the salts of sesqui-oxide of iron can be made most delicate by shaking the solution, after the addition of sulpho-cyanide, with a little ether. The latter dissolves the sulpho-cyanide of iron, becomes of a handsome rose-red color, and thus enables the operator to detect quantities of iron that cannot be detected by sulpho-cyanide alone. Arch. Ph. cxvii. 267.

Proto-sulphate of Iron. The following method is proposed by Sig. Pavis for preventing the oxidation of this salt: mix equal parts of pure protosulphate of iron and gum arabic with a little water, and evaporate at a low temperature until it attains the proper condition to pour on glass plates. Allow to dry at a temperature not exceeding 30° C., and keep in dark glass bottles. It is asserted that the salt in this form will keep for any length of time. A. D. Cir. x. 179.

Ammonio-ferrie Alum. C. L. Diehl states some difficulties he met with in the manufacture of this salt, and offers some suggestions as to their obviation. Proc. A. Ph. A. 1866, 250.

Dr. E. B. Squibb, commenting on the above, stated that if the sulphuric acid employed in the preparation of the liquor ferri tersulph. had been of sufficient strength, the difficulties would not have occurred. Ibid. 78.

Anhydrous Proto-chloride of Iron may be prepared in the crystalline form by heating sublimed sesqui-chloride of iron in a long, wide glass tube, and passing a current of hydrogen through so as to mix intimately with the vapor. Brilliant, colorless, crystalline plates are thus produced. *Ann. Ch. Pharm.* 1866, 255. *Ph. Zeitschr. R.* Oct. 1866, 397.

Arseniate of Iron, which is now used considerably in European practice, is prepared by Wittstein by double decomposition between arseniate of soda and protosulphate of iron. As prepared by this process, it is in the form of an olive-green powder, insoluble in water, soluble in chlorhydric acid with a yellow color, and of composition $2(\text{Fe O, AsO}_3) + \text{Fe}_2\text{O}_3, 3\text{AsO}_3$. *Arch. Ph.* Nov. 1866, 54.

COBALT.

The equivalent of cobalt, which has been fixed by Schneider at 30 (and of nickel, 29), has been verified by Sommaruga. *J. prakt. Ch.* xcviii. 381.

According to Skey, ferricyanide of potassium, when added to a solution of a salt of cobalt in tartaric or citric acid, to which has been added ammonia in excess, will produce an intense dark red coloration. One part of Co in 60,000 is readily detected by this test, and a distinct coloration is produced on a solution in bulk of a few ounces, when it contains but $\frac{1}{300000}$. *Ch. N. Mar.* 1867, 111.

Sulphate of Cobalt. Fröhde has obtained a sulphate with 4 eq. of water, instead of 7 eq., the usual proportion. It is precipitated as a pink powder, when a solution of the ordinary sulphate is added to concentrated sulphuric acid. *Arch. Ph.* July and Aug. 1866, 92.

URANIUM.

Sulphur Compounds of Uranium. Dr. Adolph Remelé has investigated these compounds thoroughly. An oxysulphide is precipitated from a solution of nitrate of uranium, by excess of sulphide of ammonium; * this is decomposed, however, on attempt-

* It is necessary that the sulphide of ammonium should contain the higher sulphur compounds, else the precipitate will be re-dissolved.

ing to wash it with water. If the oxysulphide is precipitated from an alcoholic solution and washed with alcohol, it may be obtained dry under the air pump. The composition of this compound is U_2O_2S ; it is soluble in water, slightly soluble in dilute alcohol, insoluble in strong alcohol. In contact with an excess of sulphide of ammonium, it changes in the course of twenty-four hours into a magnificent red substance, the composition of which the author has not yet determined, and consequently names uranium red for the present. He discusses at some length the action of other sulphides on the salts of uranium, and on the preparation of uranium red. Ch. C. B. 1866, 609, 626.

Bifluoride of Uranium, according to Carrington Bolton, separates in the form of a green powder by the action of aqueous hydrofluoric acid and proto-sesquioxide of uranium. Its composition is UFl_2 .

Uranium Salts. Belohoubeck recommends permanganate of potassa for the quantitative determination of the salts of this metal. The salts of the sesquioxide have to be reduced to the state of protoxide,—a condition readily attained by the action of metallic zinc and sulphuric acid for fifteen to thirty minutes. The method is specially applicable to the sulphates and chlorides, but not to the nitrates. J. prakt. Ch. cxix. 231.

ZINC.

Zinc. The property which zinc possesses, in the form of wire, to reduce alkaline nitrates to nitrites is greatly enhanced, according to Stahlschmidt, when the zinc is used in the form of powder. The residue of manufacture, known as *gris de zinc*, will answer this purpose admirably if it is previously treated with a little dilute acid to separate oxides and carbonates. Ch. N. April, 1867, 194.

CADMIUM.

Cadmium is separated from zinc, according to Wöhler, by boiling, for several hours, a solution containing the two metals, with tartaric acid and an excess of caustic soda. The cadmium alone is precipitated. When it has been precipitated as sulphide

along with copper, it may be separated from the latter metal by dissolving in chlorhydric acid, adding chlorate of potassa and precipitating by caustic potassa; the precipitate is dissolved in hydrocyanic acid, and the solution treated with sulphhydric acid, when the cadmium alone will be precipitated. Ch. N. April 5, 1867.

INDIUM.

Indium. Dr. Cl. Winkler, in attempting to procure indium from Freiberg zinc, according to Böttger's process, was unable to obtain more than one-fourth the amount actually contained in the zinc. J. prakt. Ch. xcvi. 345.

COPPER.

Copper. Prof. Böttger prepares powdered copper by the so-called dry process, by passing ordinary illuminating gas over oxide of copper, heated in an ordinary Florence flask by a Bunsen burner. N. Rep. xv. 555.

Basic Salts of Copper. Reindel has experimented on these compounds of copper. He obtained a sulphate of the composition, $2(\text{CuO}, \text{SO}_3) + 5(\text{CuO}, \text{HO})$, and an oxychloride of the composition, $2\text{CuCl} + 6\text{CuO} + 9\text{HO}$. The nitrate corresponds with the formula of Vogel and Reischauer: $4\text{CuO}, \text{NO}_3 + 3\text{HO}$. J. prakt. Ch. c. 1.

Ammoniated Copper. Mr. Wm. Skey states that solution of ammoniated copper cannot be filtered, as it dissolves the filter, forming a substance of the consistence of treacle, which is completely dissolved by cold water, but becomes insoluble by boiling, exposure to air, or addition of acids. In its character this substance bears close resemblance to inulin. Ch. N. Jan. 1867, 1

LEAD.

Iodide of Lead. Dr. Werner Schmid states that this iodide is not affected by light when dry, but is decomposed by its influence when in a moist condition, iodine being given off, and superoxide or carbonate of lead formed. All substances that possess an absorbent influence on iodine, sensitize the iodide to light. Ch. C. B. 1866, 606.

Perchloride of Lead. M. J. Nicklès demonstrates the existence of perchloride of lead (Pb Cl_2), which he obtains by passing chlorine through a mixture of protochloride of lead and chloride of sodium, the lead salt being in excess. Ch. N. Jan. 1867, 19.

Nitrite of Lead for analytical purposes, is prepared by Tous-saint, by passing CO_2 into a solution of basic nitrite of lead. Ph. Zeitschr. Russ. July, 1866, 179.

Sulphate of Lead, when heated in a current of dry ammoniacal gas, is converted into subsulphite and sulphide of lead, as demonstrated experimentally by G. F. Rodwell, water and sulphides being formed and nitrogen liberated. Ch. N. Mar. 1867, 137.

THALLIUM.

Thallic Acid is formed, according to Dr. Carstangin, when oxide of thallium (obtained by precipitating sesquichloride of thallium with ammonia), is suspended in strong potash lye, and a rapid stream of Cl passed through in the presence of heat. The solution is colored intensely violet red, and contains thalliate of potassa. This solution is readily concentrated or diluted without decomposition, but readily decomposed by acids, with formation of protosalts of thallium.

Carbonate of Protoxide of Thallium. Gustav Streit recommends its preparation by dissolving the metal in sulphuric acid (carefully avoiding an excess), and decomposing by boiling for an hour with carbonate of baryta. The carbonate crystallizes from the solution, on cooling, in handsome, shining needles. The residue must be carefully washed with boiling water, to avoid loss of carb. thallium, a portion of which, on account of its sparing solubility, remains undissolved. J. prakt. Ch. c. 191.

Perchloride of Thallium. Roscoe finds that this compound is isomorphous with the alkaline perchlorides, which it equals in stability. It has a sp. gr. of 4.844, is soluble in 10 p. water, at 15°C ., and in three-fifths of its weight at 100°C . It is slightly soluble in alcohol, and may be heated to near the boiling point of mercury without decomposition. Ch. N. Nov. 1866, 217.

TIN.

Selenides of Tin. R. Schneider gives some further information, and corrects the investigations of Little and Ulsemann on the selenides of tin. The protoselenide is obtained in the form of steel gray prisms, and has a metallic lustre. Its composition is Sn Se , sp. gr. 5.24; it is decomposed partially and slowly by chlorhydric, more rapidly and completely by nitric acid and aqu. regia.

The biselenide (Sn Se_2) is a dark reddish-brown indistinctly crystalline powder, of sp. gr. 4.85. It is not acted upon by water or dilute and concentrated chlorhydric acid, but readily by nitric acid and aqua regia. Hot sulphuric acid dissolves it partly, with an olive green coloration. J. prakt. Ch. xciii. 236.

TITANIUM.

Titanic Acid. Merz has carefully examined the properties of this acid, and more especially the compounds it produces with the mineral acids, which have heretofore received but limited attention. He states that the precipitate produced in its solution by ferrocyanide of potassium is of a reddish-brown color, and not of a dirty green, as usually defined in works on the subject. Tannic acid affords a very delicate reaction, producing a beautiful orange color, in the most dilute solutions. An excess of bichromate of potassa produces a handsome yellow flakey precipitate, which becomes orange colored and powdery on standing. J. prakt. Ch. xcix. 157.

TANTALUM.

Tantalum. R. Hermann gives the atomic weight of tantalum at 68.8. He also gives the composition of a number of its compounds, and has obtained results which differ considerably from those heretofore published. J. prakt. Ch. c. 385.

ILMENIUM.

Ilmenium. Hermann, who has instituted extensive researches and experiments on the nature of this metal and its compounds, has combined its acids—ilmenious and ilmenic—with soda and

potassa, and describes the properties and composition of these salts. He has also investigated the compounds that are formed by the strong mineral acids with the acids of this metal. J. prakt. Ch. xcix. 279—290.

MOLYBDENUM.

Molybdates. B. Rammelsberg comments on the researches of Delafontaine on the compounds of molybdic acid with the alkalis. Delafontaine obtained a monomolybdate of potassa, containing 5HO , instead of the compound of Svanberg and Struve, $2(\text{KO MoO}_3) + \text{aq.}$ The crystals are colorless, freely soluble in water, and lose their water of crystallization at a temperature of 100°C .

A seven-third compound of the acid with potassa is described $3\text{KO}, 7\text{MoO}_3 + 4 \text{aq.}$, which corresponds in properties with the compounds of Svanberg and Struve, to which they gave the composition $4\text{KO}, 9\text{MoO}_3$.

The termolybdate of potassa and monomolybdate of soda correspond with the compounds described by Svanberg and Struve.

A seven-third compound of soda also exists and is considered, as are also the compounds of ammonia and the double compounds of ammonia and soda. Arch. Ph. cxxviii. 193.

TUNGSTEN.

Oxides of Tungsten. Mr. Wm. Skey has discovered some new reactions of the oxides of tungsten. If tungstic acid be heated to redness, and then suddenly be brought in contact with a cold surface, it assumes a permanent black color, which appears to be due to the presence of oxide. The same effect is produced when the acid is dropped into kerosene oil; no effect is produced when it is dropped into water.

The precipitation of the blue oxide of tungsten from a solution of a salt of tungsten, by the electric current, is entirely prevented by the addition of acetic or tartaric acids, which have the power of dissolving the oxide, producing intense blue coloration.

Binoxide of tungsten appears to be soluble in chlorhydric acid. Ch. N. Nov. 1866, 256.

BISMUTH.

Subnitrates of Bismuth. Woeber states that the subnitrates of bismuth, as generally prepared, are indefinite compounds, and therefore proposes the following process, which affords a white compound, with a pearly, almost silvery lustre, and of definite composition: Dissolve 1 p. bismuth in 4 p. nit. ac., sp. gr. 1.20; dilute with water until it begins to cause a precipitate, and filter. Pour the filtered solution, in a continuous stream and with constant stirring, into 16 p. water, and allow to stand for 1—1½ hours. The liquor must now be decanted, the precipitate thrown on a filter, placed between folds of blotting paper, carefully pressed between muslin, and dried. The composition of this compound is $2(4\text{BiO}_3, \text{NO}_3) + \text{BiO NO}_3 + 3\text{HO}$. The precipitate must not be washed, else the constitution of the compound will be altered. From the decanted liquor the bismuth may be precipitated as carbonate. Ph. Zeitschr. Russ. 1866.

Acetate of Bismuth is prepared by the same author by digesting the subnitrate with aq. ammoniæ, washing the oxide, and adding conc. acet. acid as long as the mass swells. It is then washed with a small quantity of alcohol, and dried, forming a very unstable salt. *Ibid.*

ARSENICUM.

Frank has experimented on the various tests for arsenic, as proposed by Fresenius and Babo, Marsh, Reinsch and Rieckher, and has found that the method of Fresenius and Babo afforded the least, that of Marsh the most delicate reaction. Viertelj. Ph. xv. 602.

When arsenic and antimony occur together in solution, it is proposed by H. Pellet, and J. Clark that the arseniuretted and antimoniuiretted hydrogen generated from it in a Marsh's apparatus; be passed through a solution of nitrate of silver, which precipitates the antimony, in the form of a black powder, along with silver, leaving the arsenic in solution as AsO_3 , in which form it is easily determined. This process is applied with the greatest advantage when minute quantities of the metals are present; in considerable quantities, a portion of the As is also precipitated. Ch. N. Dec. 1866, 289.

Dragendorff found that when caustic potassa was used in a drying tube connected with a Marsh's apparatus, antimoniuiretted hydrogen, if present, was reduced upon its surface, while the arseniuiretted hydrogen passed with the utmost facility. This is regarded as of importance in distinguishing between the two metals. N. Rep. xv. 533.

Arsenious Acid, crystallized in the prismatic form, is obtained by Debray when a large quantity of acid is heated in a small quantity of water, in a sealed tube, to 250° C. At this temperature water dissolves at least its own weight of AsO_3 , and on cooling deposits it in the prismatic form. Towards the end the ordinary form (octohedrons) will separate. N. Rep. xv. 535.

ANTIMONY.

Determination of Antimony. E. J. Chapman proposes to heat the suspected substance in a tube open at both ends, the part in which the white sublimate is produced is cut off with a file, and heated in a solution of tartaric acid. A drop of this solution in tartaric acid will give the characteristic orange colored precipitate when placed on a small piece of pure sulphide of potassium. The latter is best prepared for the purpose by heating bisulphate of potassa with a little borax, on charcoal, in the reduction flame. Ch. C. B. Aug. 1866.

MERCURY.

Mercury. M. J. Nicklès gives some new facts in relation to the amalgamation of mercury with various metals, and points out the facility and rapidity with which sodium-amalgam attacks some of them. Ch. N. Jan. 1867, 3.

Sulphide of Mercury. Fleck has succeeded in preparing cinnabar by the humid process, by adding a solution of 1 eq. of corrosive sublimate to one of 4 eq. of hyposulphite of soda and 4 eq. of sulphate of zinc, and heating to 50° C. The hyposulphite reduces the chloride to the black variety of sulphide of mercury, but the presence of sulphate of zinc determines it to assume the red form. One-fourth of the mercury remains in solution, and is deposited as black sulphide on application of a higher heat. J. prakt. Ch. xcix. 247.

A. Claus has found that recently precipitated sulphide of mercury is soluble in excess of sulphide of ammonium, a fact to be noted in medico-legal analyses. Arch. Ph. cxxviii. 250.

A new double compound of sulphide of mercury and sulphide of potassium is described by R. Schneider, who obtained it from the mother liquors in the preparation of cinnabar by the process of Kirchhoff. It is a very unstable compound, forming crystalline plates, of an olive green color, with pearly lustre. Water decomposes it at once; its composition is KHgS_2 . See Ch. C. B. Aug. 1866, 572.

Corrosive Sublimate. Fleck recommends the employment of an excess of sulphuric acid in the preparation of the sulphate for this salt, and of an amount of chloride of sodium equivalent to the acid used, thereby insuring the elimination of HCl , the presence of which prevents the production of calomel entirely, a result which has hitherto been one of the most difficult to attain. J. prakt. Ch. xcix. 246.

- Wagner proposes to prepare this salt, by the humid process, by acting on sulphate of mercury with chlorhydric acid, that salt being decomposed by its action with formation of corrosive sublimate. The mother liquors, containing the sulphuric acid, are to be used for preparing a new lot of sulphate. Arch. d. Ph. cxxviii. 248.

Bibromide of Mercury. Ebert prepares it by double decomposition between solution of bromide of potass. and solution of nitrate of mercury, U. S. P. It is soluble in 250 p. cold water and 25 boiling water, quite soluble in alcohol, ether, glycerine and oil of turpentine. A. J. Ph. xxxix. 107.

Protiodide of Mercury. Frederking advises that this chemical be washed, with one-twelfth its weight of iodide of potassium, in solution with 3 p. water, and subsequently with pure water, as most efficient in separating the red iodide formed during its preparation. Ph. Zeitschr. R. Oct. 1866, 382.

Rieckher proposes that it be prepared by triturating together 100 p. biniodide of mercury and 60 p. pure mercury, and states that it is the simplest method of obtaining the green iodide in its purest form. His objection to the process of triturating to-

gether mercury and iodine is, that by the heat produced during the operation a double compound of proto- and biniodide is formed, to which is due the yellow color of the preparation. N. Jahr. Ph. xxvii. 20.

SILVER.

Silver. Mathay considers that the hardness of silver observed frequently and usually attributed to the presence of foreign metals, is in reality due to the high temperature at which it is cast. By allowing the melted metal to cool partially before casting, a soft silver is uniformly obtained. A. D. Cir. x. 247.

Cordure, taking advantage of the affinity of zinc for silver, applies it to its separation from argentiferous lead, by adding a small quantity to the melted metals. The zinc forms an alloy with the silver, which is specifically lighter than lead, rises to the surface, solidifies sooner, and is thus readily separated. Ch. N. March, 1867, 114.

Stas gives a very complete process for preparing pure silver from coin, for which see Ch. N. Jan. 1867, and A. J. Ph. xxxix. 166.

Iodide of Silver, according to H. Fizeau, either in the fused or crystalline form, contracts as its temperature rises. The contraction is very regular as it rises from 10° C. to +170° C., and it expands as regularly on cooling. Comp. Rend. Ch. N. April, 1867, 215.

GOLD.

Gold. According to Nicklès, gold leaf is soluble in iodine under pressure or by the influence of light. The sesquibromide and periodide of iron also act as solvents. Ch. N. Dent. Cos. viii. 112.

Hyposulphite of Gold and Soda. This compound is known in photography as *sel d'or*, and is prepared, according to Fordos, Gelis and Himly, as follows: 1 p. chloride of gold is dissolved in 50 p. water, and to this is gradually added a solution of 3 p. hypsulphite of soda. The solution is colored red at first, but soon becomes colorless; it is then treated with alcohol as long as a precipitate is produced, and the precipitate purified by resolu-

tion in water and precipitation by alcohol. It should contain 37.5 per cent. of gold. Arch. Ph. xxviii. 257.

PLATINUM.

Platinum, as also ruthenium, osmium and iridium, in the spongy state, have been the subjects of experiments by Schoenbein, with reference to their action upon chlorine water. The author found that the Cl was in a short time converted into chlorhydric acid, but that the metals were not in the least affected. Ruthenium appears to do so most rapidly; iridium most imperfectly. All these metals have the power of condensing oxygen in their pores, and of converting ozone into ordinary oxygen. J. prakt. Ch. xcviii. 85.

According to Saint-Claire Deville and Troost, platinum, in the form of wire or plate, may take up and hold, at a low red heat, 3.8 volume of hydrogen. Palladium has this power in a still greater degree. Ch. News, Aug. 1866. A. J. Ph. xxxvii. 510.

Sulphite of Platinum. Birnbaum states that when sulphurous acid is passed into suspended hydrated oxide of platinum a red brown solution is formed, which contains sulphite of platinum. The addition of a sulphite of one of the alkalis occasions a reddish-brown crystalline precipitate of the double salt of platinum and the alkali. J. prakt. Ch. c. 123.

Hyposulphite of Platinum and Soda is obtained by double decomposition between aqueous solutions of chloride of platinum and ammonium, and hyposulphite of soda, and subsequent precipitation by alcohol. An oily liquid separates, which solidifies to a crystalline yellow mass. It is purified by resolution in water, and precipitation by alcohol. It is not altered by cold chlorhydric acid or boiling caustic soda solution, but decomposed by boiling chlorhydric acid with formation of sulphide of platinum and sulphuric acid. Ann. Ch. Ph. cxl. 200. Ch. C. B. 1867, 223.

PALLADIUM.

Palladium. To separate copper from palladium it is recommended, by Wöhler, to saturate a solution of the chloride with

sulphurous acid, and to precipitate the copper from this with sulphocyanide of potassium. This is preferable to precipitating the palladium with cyanide of mercury. Ann. Ch. Pharm. Oct. 1866, 144.

OSMIUM.

Osmic Acid. The assumption that by melting osmium with caustic potassa, osmic acid (OsO_4) is formed, is disproved by Wöhler, who finds that the solution of the mass, when treated with acids, precipitates osmic acid and black oxide of osmium, showing that a lower oxide is formed, which by the action of acids is split into the above compounds. As the solution is of a yellow color, this oxide cannot be osmious acid (OsO_3) as the potash salt of this acid is of a violet color. Ch. N. Feb. 1867. 86.

ORGANIC CHEMISTRY.

CYANOGEN COMPOUNDS.

Hydrocyanic Acid (dil). C. L. Diehl recommends the process of Wittstein, for preparing this acid. Proc. A. Ph. A. 1866, 251.

Cyanide of Potassium. Knaffl proposes to prepare the pure salt by passing hydrocyanic acid into an alcoholic solution of potassa, from which the cyanide is deposited as fast as formed. The magma is dried and subsequently fused in a bright iron vessel. The process yields a salt containing 99 per cent. of pure cyanide. N. Jahrb. Ph. xxvi. 220. Ch. C. B. 1866, p. 960.

Ferro- and Ferricyanides of Iron. Mr. Wm. Skey states that the blue color of these compounds is increased in brilliancy by the action of alkalis. This statement is in contradiction to that usually found in works on the subject, which state that their color is destroyed by alkalis. He attributes the increase in color to the abstraction of a portion of the ferro- or ferri-cyanic acid. Ch. N. Dec. 1866, 280.

Soluble Prussian Blue. Brucke states that it is necessary, in order to obtain a perfectly soluble compound, to use a great excess of prussiate of potash; about one-tenth to one-eighth of

sesquichloride of iron should be used, and the precipitate washed until the washings begin to be blued, when it is to be dried in the air at ordinary temperatures. J. de Ph. April, 1866. A. J. Ph. xxxviii. 505.

Nitroprusides. The question, what oxide of nitrogen replaces the cyanide in the conversion of a ferricyanide into a nitropruside, has been determined satisfactorily by Hadon, who finds it to be NO_2 , as shown by the following equation: $\text{Fe}_2\text{Cy}_6\text{M}_3 - \text{MCy} + \text{NO}_2 = \text{Fe}_2\text{Cy}_5\text{NO}_2\text{M}_2$.

Nitropruside of Sodium is prepared, by the same author, by mixing a cold solution of 164 grs. of corrosive sublimate and 80 grs. nitrite of soda in half a pint of water, with a hot solution of 332 grs. ferricyanide of potassium, and 800 grs. acetic acid in half a pint of water. The solution is kept at 140°F . and from time to time a little nitrite of soda and acetic acid is added, until all the ferricyanide disappears. The solution is evaporated to a pasty consistence, freed from acetate of potassa by pressure and re-dissolved in a small amount of water; on cooling, cyanide of mercury is deposited. The red mother liquors contain the nitropruside, which is, however, purified with some difficulty. Ph. J. Trans. viii. 468.

Sulphocyanide of Ammonium. J. C. Sticht prepares this salt from sulphocyanide of potassium by double decomposition with sulphate of ammonia at a boiling temperature. Sulphate of potassa is allowed to crystallize out and the liquor mixed with 2 volumes of alcohol 90 per cent., the solution filtered, decolorized with animal charcoal, evaporated and crystallized.

Sulphocyanide of Potassium in solution is prepared for the above purpose by fusing dried prussiate of potash with half its weight of sulphur, dissolving in water, filtering, saturating with carbonate of potassa, and again filtering. Viertelj. Ch. xvi. 48.

Sulphocyanide of Mercury should, according to Hermes, be made by double decomposition between sulphocyanide of potassium and solution of nitrate of mercury. The solution of sub-nitrate of mercury, recommended by Wöhler, is not applicable, as one equivalent of mercury would be precipitated in the metallic state. A sub-sulphocyanide does not exist. Ph. Zeitschr. Russ. 1866, 253.

Chromo-cyanogen Compound. A. Kaiser has obtained several compounds containing Cr, Cy, and base. Of these the chromo-cyanide of potassium is the most definite. It is prepared by the action of pure cyanide of potassium on chrome alum, has a composition of $3KCy$, $Cr Cy_3$, is crystallizable, soluble in water and dilute alcohol, and insoluble in strong alcohol. Alkalies or their carbonates do not affect its aqueous solution, but acids decompose it with production of a red coloration.

The author also obtained compounds of lead and silver, which are amorphous. A chromo-hydrocyanic acid appears to exist, but has not been isolated in a pure condition. J. prakt. Ch. xcviii. p. 340.

Chromo-sulphocyanide of Potassium is formed, according to Rösler, when moderately concentrated solutions of 6 parts sulphocyanide of potassium and 5 parts chrome-alum are mixed. On addition of alcohol the sulphates crystallize out, and the clear solution remaining will yield chromo-sulphocyanide on concentration. When purified by recrystallization from alcoholic solutions, it forms dark, nearly black crystals, which appear red by transmitted light; it is permanent in the air, but loses its water of crystallization at $110^{\circ} C$, becoming opaque, and at a higher temperature is decomposed.

The author gives processes and describes the compounds of ammonium, sodium, barium, zinc, silver and lead. Ch. C. B. 1867, 417.

Seleno-cyanogen is produced, according to R. Schneider, when dry cyanide of silver is added to a solution of bromide of selenium in sulphide of carbon. It is sparingly soluble in sulphide of carbon and crystallizes from its solution in colorless or light yellow shining plates, which are tolerably permanent, but in moist air soon become reddened. Its formula is Se_2Cy . Ch. C. B. 1867, 431.

Chloro-cyanogen. Armand Gautier, recommends the following method for preparing solid chloro-cyanogen. Pass a slow current of Cl through a solution of one part hydrocyanic acid in four parts anhydrous ether. Viscid drops form on the sides of the vessel, and after 24 hours become crystalline groups. It

melts at 145°C and solidifies at 130°C . The bromide may be prepared in a similar manner. Ch. News. March, 1867. J. prakt. Ch. c. p. 45. Ph. Zeitschr. Russ. v. 563.

ORGANIC ACIDS.

Organic Acids. Persoz advances a new theory on the formation of organic acids, which is in contradiction to the theory of their formation by the oxidation of a radical. He remarks: "Organic acids are of a complex nature; they belong, according to their origin, to the acetic, benzoic, sulphovinic, or sulphobenzoic acid groups, and are generated by the action of carbonic or sulphuric acids on hydrocarbons. Thus, by the action of 2CO_2 on C_2H_4 , (Marsh gas) $\text{C}_4\text{H}_3\text{O}_3\text{HO}$, (acetic acid) is produced; by the action of 2CO_2 on C_{12}H_6 , (benzole) $\text{C}_{14}\text{H}_5\text{O}_3\text{HO}$ (benzoic acid) is formed," &c., &c. Ch. C. B. 1866, 417.

Acetic Acid is obtained by C. F. Richter from pyroligneous acid, pure and free from empyreumatic odor, by saturating it with witherite, crystallizing out the acetate of baryta and roasting, which drives off all the empyreumatic matter. A powdery mass remains, which, when dissolved in water and filtered, will yield perfectly pure acetate of baryta, from which acetic acid is readily obtained pure. N. Jahrb. Ph. xxvi. 170.

Vinegar is now prepared on a large scale from beets by the quick vinegar process, and is said to be a source of much profit. Ch. C. B. 1867, 79.

Acetate of Soda, according to Jeannel, begins to melt at 58°C ., is perfectly fluid at 75°C and boils at 123°C ., increasing 0.079 in volume. When heated to 59°C and allowed to cool again, it becomes deliquescent, while the salt which is allowed to crystallize in the ordinary manner is efflorescent. J. prakt. Ch. xcvi. p. 243.

Acetate of Alumina can not be evaporated to dryness without loss of a portion of its acid. Frederking recommends that it be kept in the form of solution only, which he prepares by double decomposition with sulphate of alumina and acetate of baryta. Ph. Zeitschr. Russ. 1866.

Acetate of Lead—Basic. Dr. Julius Löwe, who has thor-

oughly investigated the characters and composition of these salts, contradicts the existence of the sex-basic acetate of lead, which is said to be formed when neutral acetate of lead is heated with an excess of litharge in water. The only compounds formed under these circumstances are the dibasic and tribasic acetates. The precipitates heretofore assumed to be the sex-basic compound are, according to his experiments, simply mixtures of oxide with tribasic acetate. J. prakt. Ch. xcvi. 385.

Acetylene has been obtained by de Wilde, by decomposing chloride of elayl ($C_2H_4Cl_2$) at a red heat. Numerous other products of decomposition are formed. J. prakt. Ch. xcvi. 385.

Bertholet has experimented on the sensitiveness of the reaction of ammoniacal chloride of copper on acetylene, and finds that if a drop of the reagent is introduced into a test tube containing 50 cc. hydrogen mixed with one-thousandth acetylene, it is instantly covered with the characteristic red pellicle. Hydrogen containing one ten-thousandth acetylene still gave the characteristic action. Ann. Ch. Ph. cxl. 344.

Oxalic Acid. M. M. Laurent, Castheler and Bassel have succeeded in making this acid from the refuse of saddlers' and shoemakers' shops, &c., by treating the refuse leather with diluted sulphuric acid, and digesting the mass thus obtained with a mixture of 1 p. nitric acid to 3 p. water, at a temperature of $30^\circ C$. The acid is readily extracted from the product obtained. A. D. Cir. x. 175.

Oxalate of Protoxide of Iron is prepared by Reynolds by double decomposition between protosulphate of iron and an excess of oxalate of ammonia, containing a little free oxalic acid. The excess of $\bar{O}x$ prevents the deposition of any persalt formed. The composition of the salt was found by analysis to be $FeO, C_2O_3, + 4HO$. Ph. J. Trans. viii. A. J. Ph. xxxix. 125.

Gräger recommends its preparation for volumetric analysis by decomposing a filtered solution of protosulphate of iron with an equivalent of oxalic acid. The precipitation of the oxalate takes place slowly, but most effectually. N. Jahrb. Ph. xxvi. 193.

Tartaric Acid. Dr. K. Frisch has investigated the nature of

this acid with reference to its basity, and finds it capable of uniting with 2, 3 and 4 eq. of metallic bases. He obtained lead salts with 3 and 4 eq. of base, and a zinc salt with 3 eq. of base. Ch. C. B. 1866, 598.

Malonic Acid. Heintzel fixes the melting point of malonic acid at 132° C. Dessaignes had previously stated it at 140° C. The acid experimented on was made according to Baeyer's method, from barbituric acid (malonyle-urea), and the author succeeded in determining its identity with that of Dessaignes, and of Kolbe and Müller. Ann. Ch. Ph. August, 1866, 129.

Isomalic Acid. This acid was discovered by Kämmerer, in combination with silver in the silvering baths of a large photographic establishment, and he has made a number of experiments with a view to the discovery of its origin, without success, however. His experiments lead him to the supposition that it exists ready formed in the citric acid of commerce. It is crystalline, readily soluble in water and alcohol, melts at 149° C., and when heated to 160° C. behaves similar to citric acid. It gives off water which distills over with a yellow oil, which on cooling crystallizes in large plates. It has acid properties, and the author proposes to name it *pyro-iso-malic acid*. The composition of isomalic acid is $C_4 H_6 O_5$. Ann. Ch. Ph. Sept. 1866, 257.

Citric Acid. Perret recommends the saturation of lemon juice with magnesia instead of lime, as a form in which it will permit transportation, without decomposition, from its place of production to the place where the acid is to be prepared. He recommends it specially for Sicily, where magnesia is found in abundance. Ch. C. B. 1866, 431.

Row makes the following observations on the manufacture of citric acid: The concentrated juice, as imported, should be diluted to about the condition of normal juice (so as to contain about 12 oz. of acid in a gallon) and boiled. This facilitates its filtration and consequent separation of viscid matter and other impurities that are usually very difficult to remove. The accumulation of sulphuric acid in the mother liquors, owing to the addition of excess during the decomposition of citrate of lime, is

but prevented by running them through new portions of lime salt. Ch. N. 1866. Viertelj. Ph. xvi. 60.

Citrate of Magnesia. Frederking prepares this salt by precipitating 16 p. sulphate of magnesia with q. s. sodæ carb., washing the precipitate and adding to the magma 12 p. citric acid, and evaporating to dryness. A preparation is obtained which is in the form of a soft white powder, not always soluble in pure water, but freely dissolved by water containing ammonia; hence the author suggests the preparation of an ammonio-citrate of magnesia. Pharm. Zeitschr. Russ.

Formic Acid. J. C. Sticht, who has tried Lorin's process for the production of this acid from oxalic acid by the aid of glycerine, recommends it as reliable. From 75 lb. oxalic acid he obtained 62 lb. formiate of soda. Ch. C. B. 1867, 31.

Dr. F. Crace Calvert states that the formation of acid, according to Lorin's process, is tardy at first, but becomes rapid and regular when the glycerine has once been used. Ch. News, March, 1867, 126.

E. T. Chapman has observed that formic acid is produced by the action of permanganate of potassa and sulphuric acid on purified lamp black and other forms of carbon. From results obtained by him and Mr. Thorp, he ventures on the hypothesis that the action of bichromate of potassa and sulphuric acid or permanganate of potassa does not merely consist in the removal of hydrogen or addition of oxygen, but that in many cases *hydroxyl* is either substituted for hydrogen or superadded to the substance oxidized. Ch. N. Dec. 1866, 282.

Propionic and Butyric Acids have been found in the mother liquors of acetate of soda from crude pyroligneous acid, by Prof. Anderson, of Glasgow. Ch. N. Nov. 1866. A. J. Ph. xxxix. 82.

Angelic Acid. Dr. B. Jaffé finds that angelic acid, like fumaric, itaconic, citraconic and mesaconic acids, has a decided affinity for bromine, and like them combines with 2 eq. of the haloid, forming $C_5H_8O_2 + 2Br$. Bromo-angelic acid is tolerably permanent, not decomposed by boiling water or acids, but its salts are readily decomposed, some of them at ordinary temperature. J. prakt. Ch. xcvi. 113.

Cathartic Acid is, according to Kulby, the active principle of senna. It is obtained by treating a concentrated cold infusion of senna with its volume of alcohol, decanting the clear liquid from inert precipitate, and then adding an excess of strong alcohol, which precipitates the cathartic acid in combination with lime and magnesia. The precipitate is redissolved in water, and reprecipitated by a little chlorhydric acid, washed thoroughly and dried over sulphuric acid, under an air-pump. It may be obtained perfectly pure by dissolving it in alcohol of 60° (Tralles), precipitating with ether, and again drying under an air-pump. The acid being readily decomposed by heat, it is necessary that the process throughout should be conducted at ordinary temperatures.

Cathartic acid is a black, shining substance, at first tasteless, subsequently sour and bitter; insoluble in water, strong alcohol, ether and chloroform; soluble in alcohol of 60° (Tralles), from which it is precipitated by mineral acids and more or less also by organic acids. When heated with mineral acids it takes up 8H₂O and is split into cathartogenic acid and sugar. Its composition is C₁₈₀ H₉₆ O₃₂ N₂ S; that of cathartogenic acid C₁₂₈ H₆₈ O₄₆ N₂ S. N. Rep. xv. 275.

Kinic Acid.—Karl Græbe converts it into chlorobenzoic, benzoic and carbohydrokinovic acids, and concludes a resemblance in constitution to hydrate of amylene. He regards it as oxybenzoic acid, which is united similarly with 3HHO, as the hydrate of amylene is united with HHO. Ch. C. B. 1866, 460.

Bromocuminic Acid, according to A. Naquet and W. Longuinine, forms white crystals which have a melting point of 140° C. It is insoluble in cold or boiling water and cold alcohol, but is slightly dissolved by warm alcohol and readily by ether. Its silver salt is insoluble in water, but readily soluble in warm alcohol; the potassa salt is soluble in both menstrua. Ch. C. B. 1866, 799.

Valerianate of Iron. Mr. Francis Sutton, in a paper on valerianate of iron, remarks that, when prepared according to the usual formula, it is a basic salt containing sesquioxide of iron. He recommends the formula of Mr. Hanbury, by which

he obtains a semifluid precipitate, which, when freed from sulphate of soda by kneading under water, may be obtained in scales by drying on glass plates. This salt is perfectly soluble in alcohol, and is a neutral compound of composition, $\text{Fe}_2\text{O}_3 + 3\bar{\text{V}}\text{a}$. Ph. J. Trans. Sept. 1866. A. J. Ph. xxxviii. 532.

Valerianate of Zinc. The same author recommends as a test for oxide of zinc in valerianate of zinc, a dilute solution of tartaric or citric acids, which dissolves the valerianate, leaving the oxide intact. Ibid.

Benzoic, Toluyllic an Xylylic Acids have been obtained by Kekulé, by the action of sodium on the bromine compounds of benzole, toluole and xylole in a stream of carbonic acid. The carbonic acid is to be passed through for a long time, and the yield is larger if the gas is slightly moist, than when perfectly dry. Cinnamic acid has been obtained in a similar manner by Dr. Swartz from styrole. The reaction is explained by the addition of CO_2 to the hydrocarbons. J. prakt. Ch. xcix. p. 375.

Benzolic Acid. Zinin finds that this acid, hydrobenzole, and the needle-shaped crystals described by Claus, are produced by the action of an alcoholic solution of potassa on benzole when heated in the absence of air. J. prakt. Ch. xcviii. p. 495.

Sulpho-benzolic Acid, which, according to Mitscherlich, can be prepared by the action of fuming sulphuric acid on benzole, can readily be prepared, according to Stenhouse, on a large scale with ordinary sulphuric acid, by adding 4 volumes to 5 volumes of benzole and heating on the sand bath for 8 to 10 hours. Ann. Ch. Ph. cxii. 284.

Sulphobenzolates. These are best prepared, according to the same author, by decomposing the barium compound with the sulphate of the required salt. By the destructive distillation of sulphobenzolate of soda the author obtained an oily liquid, which, when purified, was found isomeric with sulphide of phenyl. Water, carbonic and sulphurous acids are produced at the same time. Similar results were obtained with the lime and ammonia salts, but their products have not yet been sufficiently examined. Ibid.

Eugenic Acid is, by the action of melted caustic potassa, converted into protocatechuic acid, according to the experiments of Hlasiwetz and Grabowski. The eugenic acid may be obtained sufficiently pure by mixing a strong alcoholic solution of potassa with oil of cloves and expressing the precipitate strongly. Ch. C. B. 1866, 443.

Carbolic Acid. Crystallized phenylic acid does not differ in chemical composition from the coal oil creasote of commerce. The latter may be readily crystallized by the addition of a minute quantity of naphthaline. Ph. C. H. 1866. N. Jahrb. Ph. xxvi. 170.

Creasote. By the action of iodine and phosphorus on creasote from beach tar, Gorup-Besanez has obtained a body identical in properties with pyrocatechuic acid. Münch. Ak. Ber. 1867. Ch. C. B. 1867, 321.

Chrysamic Acid. J. Stenhouse and H. Muller give their process for preparing chrysamic acid from aloes by the action of nitric acid, and describe the chrysamates of lime, magnesia, copper and manganese. Ch. C. B. 1867, 251.

Chrysamate of Soda is best prepared, according to Stenhouse, by boiling chrysamic acid in 12 parts water and adding gradually concentrated solution of caustic soda, until the acid is all dissolved and the solution reacts slightly alkaline. The chrysamate will all crystallize out in the course of 16 hours, and may be purified by re-crystallization. Ibid.

Chrysamate of Silver is obtained, according to the same authority, by adding to a solution of chrysam. soda in 50 parts warm water, a slight excess of nitrate of silver. The resulting precipitate is washed with pure water and dried, first by a moderate temperature and finally at a temperature of 100° C. Ibid.

Picric Acid. Castheloz recommends benzole and ether for the estimation of the purity of picric acid, which is soluble in these menstrua, while the impurities it usually contains are but sparingly soluble. These consists chiefly of foreign nitro-compounds, oxalic acid, sulphate and nitrate of soda, chloride of sodium, alum, &c. Ch. N. March, 1867, 140.

Tannic Acid. The various published processes for the esti-

mation of tannic acid have been made the subject of critical examination by Mr. John Watts. Ph. J. Trans. viii. 515.

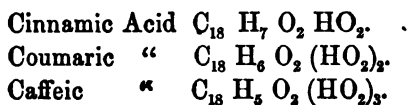
Dr. Hallwachs has likewise reviewed the various processes, and prefers those of Hammer and Löwenthal as most accurate. *Löwenthal's* method consists in the addition of solution of indigo to the liquid to be examined, and determination of excess of indigo by permanganate of potassa or chlorinated lime. *Hammer* finds the sp. gr. of the solution to be analyzed, precipitates the tannic acid carefully, and finds the amount precipitated by again taking the sp. gr. The latter the author finds the most accurate. Ch. C. B. 1866, (Aug).

Pribram recommends the use of neutral acetate of lead as answering the most accurate results, and claims, as advantages over all other methods, that it is applicable to all varieties of tannic acid, and forms precipitates which settle rapidly and are readily washed and dried.

Dr. A. Vogel, Jr., prepares a test solution of glue for volumetric determination of tannic acid, by dissolving 16 gram. purified glue in 16 cc. water, adding 1 gram. chlorhydric acid and 1.5 gram. sulphate of zinc and diluting to 200 cc. It is allowed to stand in a narrow cylinder for several days, to permit the formation of a slight deposit, may then be poured off clear, and forms a solution which will not exhibit the slightest tendency to gelatinize. N. Rep. xvi. 66.

Hlasiwetz states that the tannic acids from cinchona, krameria, filix mas and granati radix are all glucosides. The first three yield respectively cinchonic, rhatanic and filix red and sugar. The granati-tannic acid yields elagic acid and sugar. Wiener. Ak. Ber. 1867, No. xi.

Coffeotannic Acid. The investigations of Prof. Hlasiwetz, prove the acid to be a glucoside, convertible by boiling with alkalis into caffeic acid and sugar. *Caffeic Acid* is a handsome, crystalline substance forming with cinnamic and coumaric acid a regular series, viz :



These acids, by oxidation, are converted into benzoic, salicylic and protocatechuic acids respectively, with formation of acetic acid. Wiener. Ak. Ber. 1867, No. 1.

Gallic Acid is not a mono- or tribasic acid, as has been usually accepted, but quatribasic, as determined by Hlasiwetz. Ibid.

Pyrogallic Acid. V. de Luyes and G. Esparandieu prepare pyrogallic acid by heating gallic acid in a close vessel, with about 2 to 3 times its weight of water, to 200° C to 210° C, for about half an hour. By boiling the solution with a little animal charcoal and evaporating gently, the pyrogallic acid is deposited in the form of a hard amber-colored mass, from which it may be obtained perfectly white by sublimation in vacuo. By this process 75 per cent. (the theoretical quantity) is obtained, while by the process heretofore in use (Liebig's) but 37 per cent. is obtained. The authors use a bronze vessel and put the lid on with paste board, which allows the carbonic acid generated to escape, but retains the steam. N. Rep. xv. 468. Viertelj. Ph. xv. 540.

Protocatechuic Acid, according to N. Barth, is a tribasic acid, and he substantiates his statement by a lead and a baryta salt. By the action of caustic potassa on a bromo-derivative of the acid he obtained gallic acid. Wiener. Ak. Ber. 1867, No. 1.

Fatty Acids. Dr. Jakobson proposes rosaniline for the detection of free fatty acids in fixed oils, which is dissolved by the acids, but remains unaffected by the neutral oils. Ch. C. B. 1867, 159.

Oleic Acid. M. M. Bolley and Bergmann state that oleic acid may be distilled by superheated steam at a temperature of 482° F. without decomposition; above that temperature it becomes contaminated with capric and caprylic acids, as products of decomposition. A. J. Ph. xxxviii. 507.

Overbeck has investigated the chemical relations of oleic acid, and has obtained an interesting number of compounds. Ann. Ch. Ph. Oct. 1866, 39.

Crotonic Acid, artificially prepared from cyanide of allyl by the action of caustic potassa, has been examined by Carl Bulk, who finds it soluble in 12.07 parts water and crystallizable in

needles. It melts at 70°C , congeals at 70°C , and is volatile at ordinary temperatures, giving off a peculiar odor, reminding of butyric acid, into which it is converted by the combined actions zinc and sulphuric acid. Its composition is $\text{C}_4\text{H}_6\text{O}_2$, and it forms salts, which assimilate to those of butyric acid. It combines with Br, forming *dibromo-crotonic acid*, which forms crystalline salts with potassa and soda, and an amorphous salt with silver. The author has obtained an acid by-product which he supposes to be *monobromo-crotonic acid*. Ann. Ch. Ph. July, 1866.

Uric Acid is prepared by Low from guano by heating it with its weight of sulphuric acid as long as chlorhydric acid is given off, washing the undissolved portion with distilled water until free from sulphuric acid, and dissolving the residue in caustic soda. From the filtered solution the uric acid may be precipitated by chlorhydric acid and, if not sufficiently pure, may be heated with sulphuric acid a short time, diluted cautiously with water, and washed on a filter. A. D. Cir. xi. 33.

Kynurenic Acid. In contradiction to the statements of Liebig, Messrs. Meissner and Sheppard found that kynurenic acid will decompose carbonate of baryta, and that carbonic acid will not decompose a neutral solution of kynurenate of baryta. This statement has been found correct by Liebig, who publishes a communication to that effect. Ann. Ch. Ph. Oct. 1866, 143.

Glycolic (Oxy-acetic) Acid. By the distillation of glycolate of copper, a portion of the glycolic acid distills over undecomposed, while the balance is resolved into *dioxymethylene*, CO, and CO_2 , according to the experiments of Heintz. The dioxymethylene is produced, however, in very small proportions, the greater of the acid being converted into the oxides of carbon. Glycolate of alumina will also yield dioxymethylene by destructive distillation; glycolate of lime yields an oily liquid. Ann. Ch. Ph. cxi. 257.

Carminic Acid, according to Hlasiwetz and Grabowsky, is a glucoside, resolved by the action of dilute sulphuric acid into carminic red and glucose. When it is melted with caustic potassa, a new crystalline compound is produced, which they propose to name *cocinine*. A. J. Ph. xxxviii. 504.

ORGANIC BASES.

General remarks. Mr. W. A. Tilden has obtained, by the action of monochloride of iodine on the chlorides of the various organic bases, compounds which contained 2Cl and I. These compounds are analogous to the teriodides, 2 eq. of I being substituted by 2Cl. Among the bases thus changed are quinia, coffeina, triethylamine and tetrethylamine. Ch. C. B. 1866, 653.

Rudolph Wagner recommends the following method for separating alkaloids from solutions containing much extractive matter, and claims that it will furnish the alkaloid entirely free from other organic substances; 0.5 to 1.0 litre of the suspected liquid is diluted with twice its weight of water and 5 cc. of a solution of iodine in iodide of potassium (12.7 gram. I to the litre) is added. The precipitate, the formation of which is facilitated by the addition of a little sulphuric acid, is dissolved in a solution of hyposulphite of soda, filtered, and again precipitated with an excess of iodine solution. This second precipitate is dissolved in an excess of solution of sulphurous acid and concentrated, to remove hydriodic and sulphurous acids. The residue will contain the alkaloid pure, in the form of sulphate. N. Jahrb. Ph. xxvii. 82.

Dragendorff recommends the double salt of iodide of bismuth and potassium as a reagent for alkaloids, finding it a very delicate precipitant for them. He experiments also with the double iodide of antimony and potassium, the chlorides of iridium and ammonium, and of rhodium and potassium, with more or less satisfactory results, for an account of which see Ph. Zeitschr. Russ. 1866. N. Rep. xv. 499. Ch. C. B. 1867, 86.

The following general process for the separation of alkaloids, with special reference to strychnia, in forensic chemical investigations, is recommended by the same author. The suspected substance is digested twice with water, acidulated with sulphuric acid, to the strained and mixed liquors alcohol is added, until a strength of 60° Tr is attained, and filtered warm. The filtrate is *nearly* saturated with magnesia and the alcohol distilled off: the liquid, which should have an acid reaction, is shaken twice with benzole, and the latter rejected, after which it is neutralized

with ammonia and again shaken twice with benzole, which now contains the alkaloid. To purify this the benzoic solution is shaken with acidulated water, the alkaloid again precipitated by ammonia and taken up by benzole as before, which on evaporation will yield the alkaloid pure. N. Rep. xv. 503, Ch. C. B. 1867.

For the separation of atropia, hyoscyamia and aconitia, the author recommends the substitution of amylic alcohol for benzole in the first part of the process, and the final one of ether to dissolve the alkaloids. They must be taken up by ether 3 or 4 times to insure purity. N. Rep. xv. 511. Ch. C. B. 1867.

Aconitia. Mr. Groves describes the process of M. M. Liégeois and Walton for preparing this alkaloid, and recommends it as a good one. He also describes a process for obtaining it partially crystallized, and its salts in a crystalline state. From 1 lb. root he obtains on an average a little more than 10 grs. aconitia. He recommends that, for convenience of dispensing, it be reduced to fractional strength by sugar of milk. Proc. Br. Ph. Conf. Ph. J. Trans. Sept. 1866. A. J. Ph. xxxviii. 515.

Morphia. An improvement on M. Guillermond's process for estimating the percentage of morphia in opium is proposed by M. Rourselle, which has the advantage of occupying less time, with the same accuracy of results. A. J. Ph. xxxviii. 512. Ch. News, Oct. 1866.

Haselden has made a number of experiments on the nitric acid test for morphia, in order to distinguish the red coloration from that produced on cloves. He finds that the color produced on morphia—which is of a bright pinkish red—is changed in a few hours to yellow, while that produced on cloves is garnet red, and does not change to yellow. Chlorinated lime to the morphia red will change it in a few hours to a pale straw color, while in the case of cloves the color disappears entirely during the same interval. Ph. Jour. Trans. viii. 252.

Fröhde states that when a solution of molybdic acid in sulphuric acid is brought in contact with morphia or its salts, a magnificent violet color is produced, which subsequently changes to blue

and dirty green. The smallest trace of morphia will exhibit this reaction.

Narceina. Prof. Procter gives some information on this alkaloid with reference to its preparation from the mother liquors of morphia, made according to Gregory's process, and as to its solubility, &c. The acetate is very insoluble, and is instantly precipitated on mixing solutions of acetate of ammonia and muriate of narceina. In preparing the muriate, the narceina should be triturated with water previous to the addition of chlorhydric acid, else it will be partly decomposed. A. J. Ph. xxxix. 111.

Cryptopia. Messrs. T. & H. Smith contribute, by their researches, another new alkaloid to those already discovered in opium, for which they propose the above name. It is contained in the weak spirituous washings of crude precipitated morphia, the liquid designated by the French "eaux mères alcooliques." Its alkaline character is decided, perfectly neutralizing the strongest acids, and forming salts. The sulphate, acetate, muriate, nitrate and thebolactate have been obtained in beautiful and distinct crystals; they all have a tendency to form a jelly, however. Cryptopia is colorless and odorless; its taste is at first bitter, followed by a peculiar coolness like that of peppermint. Ph. J. Trans. viii. 595.

Rhœadina is a new alkaloid, discovered by Hesse in the red poppy; it is also stated to exist in some samples of good opium. It crystallizes in white prisms, and is remarkably insoluble in nearly all menstrua. Ether, alcohol, benzole, chloroform, water, solution of ammonia, carbonate of soda or caustic lime, are almost without action; but it is soluble in diluted acids. Its composition is $C_{42} H_{21} O_{12} N$. Its solution in chlorhydric or sulphuric acid, of moderate strength, is of a deep purple color, which disappears on the addition of an alkali, but reappears on addition of acid. This coloration is due to the formation of an intense coloring matter, and the simultaneous formation of another new alkaloid, *rhœagyna* ($C_{12} H_{21} O_{12} N$). By the color test 1 p. of rhœadina may readily be detected in 800,000 p. of water. Rhœadina does not neutralize acids, but forms double salts with salts of mercury, gold and platina. Ch. C. B. 1867, 33. A. J. Ph. xxxviii. 563, and xxxix. 122.

Sarracenina. Stan. Martin describes this alkaloid from *Sarracenia purpurea*, as a white substance, bitter, soluble in alcohol and ether, capable of forming salts with acids, of which the sulphate is crystallizable. He describes a process for the preparation of the alkaloid. Ph. Zeitschr. Russ. v. 365.

Corydalina, according to Wicke, is a colorless and tasteless alkaloid, forming with acids crystallizable salts. Its alcoholic solution is precipitated by tannic acid and iodide of potassium. He prepares it by extracting the roots of *Corydalis tuberosa* with water, acidulated with sulphuric acid, precipitates the percolate with subacetate of lead, the excess of lead with sulphuric acid. The corydalina is then precipitated from the filtered solution by metatungstate of soda, and the precipitate mixed and evaporated to dryness with elutriated chalk, from which it is extracted by alcohol. The crystals may be purified from tenaciously adhering resin by solution in bisulphide of carbon, and treatment of the solution with water containing chlorhydric acid. Ann. Ch. Ph. cxl. 274.

Fumarina. Gustav Preuss states his process for preparing this alkaloid from *Fumaria officinalis*. As obtained by him it forms irregular six-sided prisms, soluble in alcohol, chloroform, benzole, sulphide of carbon and amylic alcohol; slightly soluble in water; insoluble in ether. Its most characteristic reaction is with sulphuric acid, which dissolves it with a dark violet color, which is changed to brown by nitric acid, bichromate of potassa or prussiate of potassa. Ph. Zeitschr. Russ. vi. 176.

Physostigmina. O. Hesse gives a process for preparing this alkaloid from Calabar bean. It is readily soluble in alcohol, ether, benzole, sulphide of carbon and chloroform; less soluble in cold water. It may be heated to 100° C. for a short time without decomposition, reacts strongly basic, neutralizing acids completely and forming salts, which, like the base, are tasteless. The solutions of the sulphate, chloride and acetate become red on short exposure to air. If the change has not been allowed to go on too far, the color may be removed again by sulphhydric acid. Ch. C. B. 1867, 362.

Vée has also experimented on this alkaloid, and named it *Eserin*. Ch. C. B. 1867; 364.

Chlorate of Quinia is best made, according to C. R. C. Tichborne, by means of chlorate of baryta and sulphate of quinia. It is obtained in small, mushroom-shaped masses of crystals, sparingly soluble in cold, but freely soluble in boiling water. It crystallizes with difficulty when perfectly pure, but readily when it contains traces of other salts of quinia. Ph. J. Trans: viii. 67. A. J. Ph. xxxviii. 474.

Quinia, Cinchonia and Caffeina. Prof. Rochleder makes a preliminary statement to the effect that these alkaloids, which resist all ordinary oxidizing agents, are readily attacked by nascent hydrogen. Wiener Ak. Ber. 1867, No. 1.

Quinoidine. De Vry has devised a process for the purification of this alkaloid founded on the observations of Pasteur, according to which he treats 9 p. commercial quinoidine with 2 p. oxalate of ammonia, at a boiling temperature, until ammonia ceases to be given off; the chief impurity, lime, is then precipitated. On precipitating the quinoidine from the filtered solution with caustic soda, washing, precipitating and exposing to a temperature of 100° C. to 110° C., it is obtained pure, in the form of a hard, friable mass. A. D. Cir. xi. 34.

Strychnia. Rodgers observes that morphia prevents the proper reaction of bichromate of potassa on strychnia, and recommends its solution in chloroform, which leaves the morphia undissolved. Ph. C. H. 1866, 461.

M. Bert finds that carbolic acid has the property of suspending the salts of strychnia, forming with their solutions a liquid which has the appearance of an emulsion. Strychnia loses its energy in hypodermic injection when thus treated, but is not destroyed, as it can be restored again to activity by removing the carbolic acid with ether. A. J. Ph. xxxix. 180.

Dragendorff proposes a new process for the quantitative determination of strychnia and brucia in nux vomica. Viertelj. Pharm. xvi. 113.

Atropia. The statement of Kraut, that atropia is, by the action of fuming chlorhydric acid, split into tropia and atropic acid, is corrected by W. Lossen, who finds that it is split into tropia and three acids, which differ in their elementary constitu-

tion by H_2O_2 . He names these acids tropic acid ($C_{18}H_{10}O_6$), atropic acid (the acid of Kraut, $C_{18}H_8O_6$), and isotropic acid (isomeric with tropic acid). See J. prakt. Ch. c. 427.

Hyoscyamia. Ludwig has been unable to obtain crystallizable hyoscyamia from the leaves of *Hyoscyam. niger*, but obtained it readily crystallized from the seeds, from which he also obtained fixed oil, and a peculiar yellow nitrogenized resin possessing acid characters. Arch. Ph. July and Aug. 1866, 102.

Lycina. Huseman and Marme continue their researches on this alkaloid, discovered by them in the herbaceous portion of *Lycium barbarum*. It is nearly insoluble in ether, melts at $150^\circ C.$, and is charred at a higher temperature. They have formed crystalline compounds with a number of acids, among which are nitric, chromic, acetic and oxalic. It is not poisonous. Ann. Ch. Ph.

Colchicia. Prof. Maisch has examined the colchicia of Mr. J. E. Carter, and finds that it has an alkaline reaction, and is capable of covering the acid reaction of sulphuric acid on litmus. By heating its solution in dilute sulphuric acid, it is converted into the *colchiceine* of Oberlin, which is neutral, or, if acid, a very weak one. Colchicia is a very weak, unstable base; its most delicate precipitant is Mayer's iodohydrargyrate of potassium. A. J. Ph. xxxix. 97.

Nicotina. Liecke recommends the following process for the quantitative determination of nicotina in tobacco: The dried leaves are extracted with water, acidulated with sulphuric acid, the solution evaporated to the consistence of an extract, the extract treated with alcohol, the alcoholic tincture concentrated, and the extract thus obtained distilled in a glass retort with sol. caustic potassa. The distillate contains all the nicotina, the amount of which is readily determined by addition of volumetric sol. of sulphuric acid in excess, and measurement of excess of sulphuric acid with volumetric solution of soda. N. Jahrb. Ph. xxvii. 94.

According to Dr. Huber, nicotina yields, by oxidation with bichromate of potassa and sulphuric acid, an acid of composition $C_6H_5NO_2$, which is capable of forming crystallizable salts. Be-

sides this acid, a small portion of another acid, richer in carbon, and at least one base is formed. Ann. Ch. Ph. cxli. 271.

Cyanin. The experiments of Städeler prove cyanin to be an iodine compound, of compos. $C_{23}H_{33}N_2I$. By the action of acids or their salts he has obtained a number of products in which the I is replaced by the respective acids. Compounds were obtained containing Cl, NO_3 , SO_3 , BoO_3 , and $\bar{A}c$, all of which are blue coloring matters, but exceedingly sensitive to sunlight. J. Prakt. Ch. c. 129.

According to Schönbein, cyanin affords a most delicate color reagent for acids and alkalies. It will detect the presence of one-millionth of sulphuric acid or caustic potassa, and affords a distinct reaction in water filtered through magnesia. A. D. Cir. x. 179.

Anilina. The sp. gr. of this important base is, when pure, 1.028. If the sp. gr. is above 1.030, it may be assumed to contain undecomposed nitro-benzole; if below 1.000, it contains acetone, or undecomposed benzole. The most common impurity is toluidine (which appears to be very essential, however, in the manufacture of some of the aniline colors), which cannot be entirely separated from it; but the percentage in which it is admixed may be ascertained by fractional distillation. Ph. C. H. July, 1866.

Dr. Bimeyer has improved and cheapened the manufacture of anilina from nitro-benzole, by the application of powdered iron. By the reaction for two days of 15 parts powd. iron on 20 parts nitro-benzole, in the presence of water containing chlorhydric acid to the amount of 2.5 per cent. of the nitro-benzole, 11.96 parts anilina was obtained. 40 parts nitro-benzole, and 60 parts powd. iron, treated as above, yielded 24 parts anilina. Ch. Ch. B. 1866, 660.

Anilina possesses the power of dissolving caoutchouc, shellac, and several other resins. A. D. Cir.

Soluble Aniline-blue. Dr. M. Vogel finds that the conversion of *Bleu de Lyon* into soluble aniline-blue by the aid of sulphuric acid, does not commence before a temperature of $130^\circ C.$, and ceases at $150^\circ C.$, being then decomposed. Five parts of acid to

one of blue is necessary, an excess of acid favoring the reaction. Acid of 66° B. is not strong enough; fuming acid should be employed. Ch. C. B. 1866, 662.

Fuchsine. Bimeyer asserts that the commercial article always contains more or less arsenic acid, and proposes its removal by the addition of carbonate of lime (marble dust) to the solution of the crude product obtained by fusion. Regarding the most profitable proportion of arsenic acid and anilina in its manufacture, the author recommends 100 p. solution, containing 60 per cent. of acid, to 58.6 p. base. Ch. C. B. 1866, 659.

Leukaniline, according to Durand, is prepared from fuchsine by adding to its aqueous solution pulverized zinc. The precipitate formed, when treated with alcohol, will yield the leukaniline in the form of a resinous yellow mass. It was discovered by Kochlin, and is used as a black or brown dye, producing several shades of the latter. Ch. C. B. 1866, 655.

Formamide may be prepared, according to Lorin, from the formiates of ammonia, soda or lime, or from oxalate of ammonia by dry distillation. J. prakt. Ch. xcvi. 123.

Diphenylamine is prepared by MM. De Laire, Girard and Chapoteaut by heating 1½ eq. pure aniline with 1 eq. chloride of anilina for 30 to 35 hours. The product is a mixture of chlor. of diphenylamine, chloride of anilina, and uncombined anilina, and a larger or small amount of coloring matter, according to the operation. By treating the mixture with chlorhydric acid and 20 to 30 times as much water, the diphenylamine separates in the form of oily globules, which solidify on cooling, and may be purified by repeated crystallization from ether or benzole. Ann. Ch. Ph. cxl. 344.

Ditolylamine is prepared by the same authors, by the same process as above, substituting chloride and pure toluidine for the anilines, and

Phenyl-tolylamine, by employing both toluidine and aniline, without regard to which is combined with chlorine. Ibid.

Thiosinnamide. R. S. Maley has experimented on the bromine derivatives of this base, and finds, contrary to the statement of Aschoff, that the addition of Br does not occasion a

precipitate, when the substances employed are perfectly pure. If to a solution in alcohol bromine is dropped fractionally, crystals will form at the end of 24 hours, consisting of *dibromothiosinamide*, which is soluble in alcohol and water, and has a composition of $C_4H_8N_2SBr_2$. One eq. of Br can be readily substituted by Cl, forming *bromo-chloro-thiosinamide*. Both compounds form definite crystalline compounds with bichloride of platinum.

Triglycolamideacid-triamide. According to Heintz, this compound is moderately soluble in cold, but very soluble in hot water, from which it crystallizes on cooling. In aqueous solution it is decomposed when heated for some time, and also on addition of solution of soda. With acids it forms salts, whose solutions are readily decomposed by heat, but when allowed to evaporate spontaneously, will separate in the crystalline form. The chloride forms double salts with the chlorides of platinum, gold and mercury. Ann. Ch. Ph. cxl. 267.

ALCOHOLS AND ALLIED SUBSTANCES.

Alcohol. Fritzsche proposes to free alcohol from fusel oil by passing its vapor through refined fixed oil, which, having a greater affinity for fusel oil than alcohol, retains it. Ph. Zeitschr. Russ. Aug., 1866, 262.

Bugowski states that one volume of charcoal will deprive one volume of alcohol, in the form of vapor, of its fusel oil. The charcoal is readily restored by heating to redness. The action is most complete when the alcohol vapor is passed slowly through the charcoal cylinders, which should be 5 metres high and $2\frac{1}{2}$ metres diameter. Ibid. 264.

Acetic Ether, according to Geuther, has a boiling point of $72^\circ C$. when perfectly pure, instead of $74^\circ C$., as heretofore given. Ch. C. B. 1866, 787.

Grosschopff uses the following proportions for preparing the ether: 40lb fused and powdered acetate of soda is introduced into a copper still arranged with a stirrer, and to this a cold mixture of 46lb sulphuric acid, sp. gr. 1.840, and 37lb alcohol

95 per cent. is slowly added with constant stirring; it is then distilled with steam. Arch. Ph. cxxviii. 212.

Chrysamic Ether is prepared by J. Stenhouse by digesting chrysmate of silver with 5 parts iodide of ethyl on a water bath for 10 to 15 hours, and subsequently distilling off the excess of iodide of ethyl. From the residue, consisting of chrysamic ether and iodide of silver, the ether is extracted by benzole and is purified by repeated crystallizations from benzole and finally from alcohol. Ch. C. B. 1866, 254.

Tungstic Ether. Maly has obtained this ether by the action of oxychloride of tungsten ($W_o Cl_2 O$) on strong alcohol. By simply shaking them together, the oxychloride is dissolved, and the solution, which is at first clear, becomes turbid in a short time, and in 24 hours a white flocculent precipitate has formed, which is the ether in question. It is, when dry, a hard, brittle, glistening mass, insoluble in water, alcohol or ether. On account of its insolubility, the author has not yet been able to determine its molecular arrangement. It contains $W_o O_3$ 85.80, C 5.80, N 1.77. J. prakt. Ch. xcvi. 196.

Metallic Ethyl Compounds. Wanklyn gives a new process for forming the ethyl compounds of Hg, Zn, Na, Mg, Cu, &c., in J. Ch. Soc. iv. 128. Ann. Ch. Ph. cxl. 353.

Ethylamine is, according to the experiments of Wanklyn and Chapman, by the action of bichromate of potassa and sulphuric acid at a boiling temperature, converted into aldehyde, acetic acid and water, and a large amount of gas is liberated which the author inclines to believe is nitrogen. J. Ch. Soc. Ch. C. B. 1867, 255.

Chloroform. Prof. Maisch read a paper on the sp. gr. of medicinal chloroform, in which he recommends the addition of sufficient alcohol to reduce it to sp. gr. 1.475. Proceedings 1866.

The spontaneous decomposition of chloroform has been noted in Ph. C. H. 1866, 426, in a sample having a sp. gr. 1.496, and is attributed to various causes, but chiefly to impurities. The probable cause, as pointed out at the last meeting of the Asso-

ciation by Prof. Maisch, does not appear to have occurred to the author.

Mesitylene. According to Bæyer, oxide of mesityl is produced when acetone is saturated with gaseous chlorhydric acid and is then allowed to stand for 8 to 14 days. It separates in the form of a brownish oil, and is purified from *phoron*—produced at the same time—by fractional distillation. It is a colorless liquid, possessing an odor assimilating to that of oil of peppermint, boils at 130°C . and is composed of $\text{C}_{12}\text{H}_{10}\text{O}_2$. Ann. Ch. Ph. cxl. 297. Ch. C. B. 1867, 145.

Nitrite of Amylic Oxide, by the action of hydriodic acid, is converted into iodide of amyl with elimination of nitric oxide, according to the experiments of Chapman.

The same author states that, by the action of anhydrous phosphoric acid on this ether and subsequent action of caustic alkalis, the oxide of amyl is converted into propionic and acetic acids. J. Ch. Soc. Ch. C. B. 1867, 269.

Sulphides of Amyl, Butyl and Butyl-amyl. Alex. Saylzeff, finds that, by the action of fuming NO_2 on these compounds, but one equivalent of oxygen is taken into combination instead of two equivalents, as in the case of *sulphide of æthyl*. Ch. C. B. 1866, 954.

Triglycolamidic Ether. Heintz, who prepares this ether by heating triglycolamidate of silver with iodide of ethyl in a sealed tube, gives the following additional information in regard to this interesting compound. It is an oily liquid, volatile at from 280° to 290°C . with partial decomposition, has a faint fruity odor and burns with a bright flame. It is readily soluble in alcohol and ether, slightly soluble in water, and more readily when cold than at a boiling temperature. Ann. Ch. Ph. cxl. 264.

Glycerine. Guigard points out certain catalytic phenomena produced by glycerine. With many of the metallic salts, in conjunction with a salt of one of the alkalies, it forms solutions, from which their oxide can no longer be precipitated. Ch. N. Nov. 1866, 255.

Mr. Wm. Crookes draws attention to a lot of glycerine which

was imported in bulk from Germany, and arrived in London in hard, solid, crystalline masses. The melting point of these crystals was found to be 45°F., and, when fused, the isolated crystals formed pure glycerine, somewhat more viscid than the ordinary concentrated article. The author's views on the subject are that the low temperature to which it was exposed (it was shipped during very cold weather) and the vibration of the railway carriages, caused it to assume the solid form. Ch. N. A. D. Cir. xi. 56.

A crystallization of glycerine has been noticed by a manufacturer of Vienna, but under circumstances somewhat different from those stated above. It is rendered probable that the presence of iron in solution caused the crystallization, as it has been kept in iron tanks for upwards of a year, and was impure at the outset. Ch. N. April 5th, 1867.

A. C. Pope, in a communication to A. D. Cir., states that various samples of glycerine examined by him, among which one labelled "made in Vienna," and one of Bower, formed precipitates, or otherwise indicated the presence of grape sugar, by Trommer's test. A. D. Cir. xi. 9.

Prof. Wm. Procter has examined commercial glycerine of American and German manufacture, and finds it free from glucose, contrary to the assertion of Pope. He has also found them free from chlorine and lime, and states that commercial glycerine is insoluble in chloroform, as evidenced by numerous tests on samples from different manufacturers. A. J. Ph. xxxix. 109.

Prof. Maisch also examined American and Vienna glycerines, with results agreeing in the main with those obtained by Prof. Procter. He prefers Bower's glycerine to that of Price's Pat. Candle Co., as it is equal to the latter in every respect, and superior in its more bland taste, Price's being slightly acrimonious. A. J. Ph. xxxix. 117.

Dr. Adolphus, in a paper communicated to Med. and Surg. Rep. Jan. 1867, makes some interesting remarks on its solvent power, and states the relative amounts in which a large number

of substances, both organic and inorganic, are taken up by it. A. J. Ph. xxxix. 149.

Glycerine appears to have the power of preserving the sulphides of ammonium, sodium and potassium from decomposition, according to the experiments of Lapage. Ch. N. May, 1867. A. J. Ph. xxxix. 369.

Nitro-glycerine. Dr. K. List asserts that, although nitro-glycerine is subject to spontaneous decomposition, this is not attended by danger if the gases generated are allowed to escape. It should be kept in loosely stoppered vessels, and, during transportation, a safety valve should be attached to the vessel containing it. Ch. C. B. 1866, 528.

Kopp recommends that nitro-glycerine for blasting is best made on the spot where it is to be used. An impure article, which answers the purpose well, may be prepared by acting on syrupy glycerine with nitrate of potassa and sulphuric acid in the cold for five to ten minutes. Elevation of temperature would result in the production of oxalic acid, instead of nitro-glycerine. It is then washed in water by decantation, and ready for use. Thus prepared, it is a yellow or brownish oil, has a slight acid reaction, and contains a little water. It should be kept in open vessels, and used as soon as possible after it is made. Ch. N. Aug. 1866. A. D. Circ. x. 257. A. J. Ph. xxxviii.

Oxide of Propylene. By the action of sodium amalgam on oxide of propylene, E. Linnemann has obtained a volatile product, which, after being deprived of water by carb. potass. and rectification, possesses all the properties of *isopropylic alcohol*. By the action of sulphate or chromate of potassa on this product, acetone is produced. Ann. Ch. Ph. cxl. 173. Ch. C. B. 1867, 173.

HYDROCARBONS AND ALLIED SUBSTANCES.

Bertholet finds that some hydrocarbons are attacked by potassium, and form compounds with it. Acetylene, cumol, naphthaline, phenyl, anthracene, rutene, &c., are all attacked energetically. Styrol gives rise to special phenomena. The compounds formed appear to be explosive. Ch. N. Nov. 1866, 249.

Schorlemmer has obtained several new hydrocarbons from an oil obtained from coal-tar (which had previously been treated with sulphuric acid), at a temperature between 200° and 300° C. The composition of these is as follows :

$C_{12}H_{20}$	.	.	.	boiling point 210° C.
$C_{14}H_{24}$	.	.	.	" " 240° C.
$C_{16}H_{28}$	.	.	.	" " 280° C.

They are colorless, refractive liquids, lighter than water, and have an odor resembling that of parsnip. They are decomposed by nitric or sulphuric acids ; bromine reacts violently, forming unstable compounds, of which the compound $C_{14}H_{24}Br_2$ is the most permanent.

K. Bigot and R. Fittig have continued their experiments on the synthesis of several hydrocarbons, and describe the properties and reactions of amyl-benzole, amyl-toluole and xylene. Ch. B. 1867, 420.

Benzole. Bertholet observes that when benzole is passed through a red hot tube, it decomposes with condensation into several hydrocarbons, of which the principal one is phenyl. Chrysene ($C_{30}H_{12}$) is also produced in small quantities. *Toluole* is decomposed in a similar manner when subjected to the same process, forming, among quite a number of hydrocarbons, benzole and naphthaline. Ch. N. Nov. 1866, 237.

Ethylated Benzole. Fittig has obtained this body from monobromated benzole. Its composition is $C_{12}H_8 + C_4H_8$; boiling point 135° C. Ch. N. Nov. 1866, 242.

Nitro-Benzole. Depouilly Brothers, in an article on the subject, give some valuable hints relative to the manufacture of this important chemical. A. D. Cir. x. 233.

Di-azobenzole, a new explosive compound, discovered by M. Gries, is prepared, according to the French patent, by acting upon hydrochlorate of aniline with 2 eq. of chlorhydric acid and 1 eq. of nitrate of soda, the latter being added gradually. The mixture is left to itself as long as nitrogen is disengaged. The di-azobenzole is precipitated from this in the form of chromate or chloro-chromate, by the addition of 1 eq. bichrom. potassa and 1 eq. chlorhydric acid, and, after separation, is dried with

the utmost care. It is said to surpass fulminate of mercury in explosive force.* A. D. Cir. xi. 161.

Trichloro-Benzole is obtained by Lesimple by the direct action of chlorine on benzole vapor. The action is rapid, the yield abundant, and the process, therefore, preferable to that of Mitscherlich, which consists in the exposure of chlorine and benzole to the sun's rays. J. prakt. Ch. xcix. 281.

Anethole. Ladenburg and Leverkus, by their investigations, classify this hydrocarbon among the derivatives of benzole. Ch. C. B. 1866, 959.

Bromocumol is obtained by R. Fittig by the action of bromine on methyl-xylene. Ch. C. B. 1866, 479.

Amylene. Bauer has experimented on the compounds of chlorine and amylene, and obtained a compound which approximates to the composition C_6H_9Cl , and which he names chlorated amylene. He also obtained chloride of amylene, $C_6H_{10}Cl_2$, chlorated chloride of amyle, $C_6H_9Cl_3$, and bichloride of amylene, $C_6H_8Cl_2Cl_2$. J. prakt. Ch. c. 41.

Xylene. By the action of nitric acid on this hydrocarbon, Beilstein obtains toluylic acid; this, when purified, yields by the action of bichromate of potassa and sulphuric acid, terphthalic acid. The author had previously obtained the latter acid from xylene, by direct oxidation. The toluylic acid obtained by this process differs remarkably from the ordinary acid, which, by oxidation, is converted into benzoic acid. J. prakt. Ch. xcix. 378.

Chimogene. Prof. Vander Weyde, in experimenting on the volatile and gaseous products of petroleum, discovered a very volatile liquid, for which he proposes the above name. It can be made to boil at as low a temperature as $30^\circ F.$, and he obtained products which will boil at 40° , 50° , and $60^\circ F.$ It is proposed as a substitute for rhigolene. Dent. Cos. A. D. Cir. x. 179.

(It is scarcely probable that a liquid which boils at $30^\circ F.$ should have the same composition as that which boils at $60^\circ F.$, and it is therefore questionable whether the same name can properly be applied to both liquids.)

Petroleum. Mr. John Attfield has devised a method by which he determines the igniting point of petroleum, which is simple in principle and easy of execution. Ph. J. Trans. viii. A. D. Cir. xi. 30.

It has been determined that crude petroleum contains a considerable amount of sulphide of carbon, and that, consequently, the more volatile products are always more or less contaminated with it. Those obtained between 30° and 80° C. (Benzine) contain the largest amount, and should be freed from it by agitation with mercury, if to be used for analytical purposes. Ph. C. H. vii. 393.

Paraffine. Its solubility in benzole, chloroform and bisulphide of carbon, at different temperatures, is as follows, according to Dr. A. Vogel:—

In 1 part benzole at 46° C. 7·7, at 43° C. 5·0, at 39° C. 4·0, at 23° C. 0·7, at 20° C. 0·016 parts.

In chloroform (1 part) at 23° C. 0·22, 20° C. 0·16 parts.

In one part bisulphide carbon at 23° C. 1·0 part.

Aloisol. Robiquet, who obtained this substance by the distillation of aloes with caustic lime, describes it as an oily liquid, colorless when recent, but becoming browned rapidly on exposure to air, and of an odor resembling that of fusel oil and bitter almonds combined. Rembold has examined this compound carefully, and has determined, by fractional distillation, that it cannot be considered a regular compound. He obtained distillates which differ greatly in their composition, and therefore considers it a hydrocarbon, mixed with oxygen compounds in various proportions. J. prakt. Ch. xcvi. 210.

Cuminol and Cymol. The contradictory assertions with regard to the oxidation products of oil of cumín, have induced Buliginsky and Erlemeyer to make this the subject of investigation. They have not yet arrived at any decided results, but contend that *cymol* will not yield an acid of the formula $C_6H_4O_4$ by the action of either chromic or nitric acid, but are inclined to believe that such an acid can be obtained from *cuminol*. An. Ch. Ph. Oct. 1866.

Sulphide of Allyl. Ludwig, in an interesting paper on this

subject, contradicts the statement of Wertheim in regard to the compound with nitrate of silver, in which the sulphide was held to be changed into oxide of allyl. Such is not the case, the sulphide combining and forming $2 (\text{AgO}, \text{NO}_2) + \text{C}_6 \text{H}_{10} \text{S}$. Ann. Ch. Ph.

Volatile Oils. Puscher proposes fuschine as a test for alcohol in volatile oils, as that substance is insoluble in them, but readily dissolved by alcohol, and will detect 1 per cent. Ph. Zeitschr. Russ. Aug. 1866, 265.

Oil of Bitter Almonds. Hlasiwetz and Barth, by acting upon this oil with anhydrous phosphoric acid in the cold, have obtained a resin identical with benzoin resin. Ch. C. B. 1866, 449.

Mr. Wm. A. Tilden states, in Ph. J. Trans. viii. 325, that oil of bitter almonds treated with a small portion of chloride of calcium, to separate moisture, has kept perfectly well since 1864, while a sample of the same oil, not treated in this manner, was found full of crystals of benzoic acid. The addition of alcohol to this oil, according to his experiments, facilitates rather than prevents decomposition.

Oil of Sassafras. Prof. Procter considers the difference in color of various samples of this oil to be due to the employment of roots of variable age and condition; the roots of old stumps, to which the outer bark is still attached, will yield a colored oil, while the colorless oil is produced from young roots only. Proc. 1866. A. J. Ph. xxxviii. 481.

Camphor. By the action of sodium on a solution of camphor in benzole or toluole, Bauligny has obtained a crystalline compound, for which he assumes the formula $\text{C}_{10} \text{H}_{15} \text{NaO}_2$. By the action of iodide of ethyl and chloracetyl on this compound, the author has obtained products which he names respectively ethyl-camphor and acetyl-camphor. Ch. C. B. 1866, 968.

Turpentine Camphor. Mr. Voy, of San Francisco, Cal., has discovered in cavities near the core of a semidecomposed pine-tree stump, in Shasta Co., Cal., a small quantity of crystals, which S. W. Johnson determined to be identical with turpentine camphor. A. J. Ph. xxxix. 224.

Resins. H. Hlasiwetz and L. Barth have conducted some

very interesting experiments on resins obtained from assafoetida, gamboge, acaroid resin, sagapenum, opoponax, &c., with a view to determining their products of decomposition when heated with caustic potassa.

Assafoetida Resin yielded *protocatechuic acid* and *resorcin*. The principle, existing naturally in the resin, and which yields the protocatechuic acid, is *ferulic acid*, a crystalline compound possessing weak acid properties. It appears to be a bibasic acid, and has been combined with ammonia, potassa and silver, forming well-defined compounds. Its composition is $C_{10}H_{10}O_4$.

Gamboge Resin yields phloroglucin, pyrotartaric acid and a peculiar acid resembling uvitinic acid, which the authors have named *isuvitinic acid*.

Acaroid Resin will yield paraoxybenzoic acid in large quantity, and is therefore recommended as its source.

Sagapenum Resin gives an abundant yield of resorcin.

Opoponax Resin will yield protocatechuic and pyrocatechuic acids, besides another resin, the characters of which have not been well defined. Ch. C. B. 1866, 422, 449.

India Rubber. Mr. Bourne devised a method for deodorizing india rubber, the general outline of which is to imbed it in charcoal, on shallow trays, and expose it to a temperature of 120° to 180° for 3 to 6 hours, when it will be found completely deodorized, and under proper management will not impair the finest texture, in substance or appearance.

LIGNIN, STARCH, SUGARS.

Lignin. R. Warrington draws attention to some sources of error in the estimation of woody fibre, as practiced by the present processes. Ch. N. Jan. 1867, 41.

Gun Cotton. Mr. Abel has patented (in England) a process for preparing explosive gun cotton in such a manner as to render it both safe and convenient. By processes similar to those employed in the manufacture of paper, he prepares it in sheets, discs, granules, cylinders, &c., with and without the aid of binding material. For the latter he uses collodion, or appropriate gums and resins. Ch. News. A. D. Cir. xi. 31.

In a paper on the stability of gun cotton the same author makes some most interesting statements based upon experiments conducted at Woolwich. Ch. N. Sep. 1866, 203.

Dextrine. Musculus, who made dextrine the subject of investigation five years ago, advanced the theory that starch, under the influence of diastase or weak acids, is converted into sugar and dextrine directly, and not, as heretofore stated, into dextrine alone; that the change takes place in the proportion of one part of sugar to two parts of dextrine, and that diastase exerts *no action* on dextrine. Payen subsequently disputed this theory. Musculus now reiterates his statements, and substantiates them by various experiments. Dextrine is convertible into sugar only by continued boiling with dilute mineral acids. The author also asserts that the sweet principle of malt, known as

Maltose, cannot be considered a distinct principle, and that it is a mixture of grape sugar and dextrine. The rotating power of maltose to the right bears a relation to that of glucose as 3 to 2; that of dextrine being still greater explains, under the author's view of the constitution of maltose, its greater rotating power over that of glucose. Viertelj. Ph. xv. 594.

Malt. Lermier found, by analysis, that the germs of malt contain malic, formic, asparaginic, succinic, citric, acetic, tannic, lactic, oxalic, propionic and fatty acids, asparagin, cholesterine, bitter principle, green coloring matter, fixed oil, gum, resin, wax and sugar.

Cane Sugar. Dr. C. Scheibler recommends the addition of a small quantity of tannic acid, followed by subacetate of lead, to clarify saccharine solutions preparatory to their examination by the polarizing instrument. This is specially applicable in the examination of beet juice, which cannot always be clarified sufficiently by subacetate of lead alone.

Dr. Nicklès proposes bichloride of carbon as a test to distinguish cane sugar from glucose. When glucose is heated in a sealed tube with that substance it is not changed, or merely communicates a yellow color to the liquid, which is not browned on standing. Cane sugar, under the same circumstances, communicates a brown color. N. Rep. xv. 359.

O. Loew states, that when sugar is heated with water in a sealed tube to 160°C ., formic and carbonic acids are formed, and carbon separates; it is well known that dry sugar is not decomposed with separation of carbon when heated to the same temperature, levulosan and glucose being formed. The water seems to exert a specific action, as sugar remains perfectly unchanged when heated with alcohol under the same circumstances. A. J. Ph. xxxix. 334.

Similar products are formed when starch, gum or milk sugar are heated with water in sealed tubes to 170°C . A. J. Ph. xxxix. 334.

Caramel. Mr. Thos. Sherlock gives explicit directions for preparing caramel on a large scale. Ch. N., June, 1867, 282.

A writer, in Ch. N., gives, among other processes, the following for preparing caramel: The sugar is heated in a capacious copper vessel, in an oil bath, to $410\text{--}428^{\circ}\text{F}$., stirring constantly as long as aqueous vapor is given off. The crude product thus obtained is placed in a parchment dialyser, which is placed on water. The undecomposed sugar and intermediate products are thus gotten rid of, and what remains on the dialyser is weight for weight five times as strong as the crude caramel. A. D. Cir. xi. 160.

Glucose. M. G. Bergeser has devised a method for determining the amount of glucose in urine, which consists in determining the volume of gas generated from a given volume of urine by fermentation with yeast, and comparing it with the volume of gas obtained from an equal volume of solution of pure glucose of known strength. A. D. Cir. x. 225.

Prof. Böttger proposes an alkaline solution of oxide of bismuth for the detection of diabetic glucose. On addition of a few drops of the solution to diabetic urine and heating to ebullition, a dark coloration takes place, and after a time metallic bismuth is precipitated. If albumen is present it must first be removed by boiling and filtration. The test liquid is prepared with potassa and tartaric acid in a similar manner to the ammonio-citrate of bismuth. Ph. C. H. Ph. Zeitschr. Russ., Aug., 1866, 244.

Mannite. Wittstein finds that perfectly pure mannite will not reduce an alkaline solution of copper, as stated by some authorities. In all cases where reduction takes place it must be attributed to grape sugar, which may be present from various causes. Ph. C. H., Aug., 1866, 317.

Lactine. Fudakowski finds that sugar of milk may, by the action of dilute sulphuric acid, be split into two kinds of sugar: one variety of which ferments less rapidly than the other; is less soluble in alcohol and less sweet to the taste. Ch. N., Mar., 1867, 134.

Hesperidine Sugar. Deha, in investigating hesperidine, found that it was readily split into a crystallizable body and sugar. The sugar is readily separated and found to be isomeric with mannite, dulcitol, &c. It rotates the rays of polarized light to the right; is readily soluble in water, but slightly soluble in cold alcohol, and readily soluble at the boiling temperature. It reddens alkaline solution of copper, but not as readily as glucose, and is not converted into oxalic acid by nitric acid. Its composition is $C_6H_{14}O_6$. N. Rep. xv. 365.

GLUCOSIDES AND OTHER ORGANIC PROXIMATE PRINCIPLES.

Helleborine and helleboreine. A. Huseman and W. Marme have examined these principles and found that helleborine is contained abundantly in *Helleborus viridis* (not to be confounded with *Verat. virid.*), while the principal source for helleboreine is *H. niger*. *Helleborine* is insoluble in water, sparingly soluble in fixed oils and ether, and freely soluble in chloroform and boiling alcohol. By the action of dilute mineral acids it is split into *helleboresin* ($C_{60}H_{38}O_8$) and glucose ($C_{12}H_{12}O_{12}$) = $C_{72}H_{42}O_{12}$ + $8H_2O$. *Helleboreine* is readily soluble in water, more difficult in alcohol and insoluble in ether. Dilute acids split it into *helleboretin* ($C_{26}H_{20}O_6$) and glucose $2(C_{12}H_{12}O_{12})$ = $C_{52}H_{44}O_{30}$. Pharm. C. H., Aug., 1866.

Asparagin has been discovered by M. Scheibler in beet root molasses. During the preparation of sugar it is converted into aspartic acid and ammonia by the action of lime, which accounts for the evolution of ammonia, always observed during the manufacture of beet sugar. J. de Ph., 1866. A. J. Ph. xxxviii. 506.

Carotin and *hydrocarotin* in carrots is stated to be simply *cholesterine* colored with a red pigment, according to the researches of MM. Frorde and Sœauer. A. J. Ph. xxxviii. 505

Santonine. F. Sestini has experimented on the chlorine compounds of santonine and has prepared mono- and tri-chloro-santonine in addition to the di-chloro-santonine previously discovered by Heldt. J. prakt. Ch. xcix. 253.

Grosschopff recommends that the precipitate of impure santonine, produced by acids in the liquor obtained from wormseed by boiling with lime, be washed with weak ammonia before re-crystallizing. This treatment will remove the resin which nearly always accompanies the precipitate. If the precipitation is conducted at a temperature below 30°C., the santonine is least contaminated with resin. He states his yields at 1.5 to 2.3 per cent. Arch. Ph. cxxviii. 210.

Erythrocentaurin. Impure crystals of this substance are obtained by C. Méhu from the herbaceous portion of *Erythræa centaureum*, by evaporating an ethereal solution of an alcoholic extract from an aqueous extract. It is odorless, tasteless, neutral and not hygroscopic; melts at 136°C., is not volatile, is soluble in 30 p. boiling and 1630 p. cold water. It is yellow, but on exposure to sunlight becomes red, and is restored to yellow on heating to near its melting point. In composition it corresponds with the formula $C_{27}H_{12}O_8$. Ph. Zeitschr. Russ., Oct., 1866, 407.

Turpethine, according to Spirgatis, who obtained it from the root of *Ipomœa turpethum*, is an amorphous, brownish-yellow, inodorous substance, at first tasteless, but subsequently becomes sharp, bitter and irritating. It is soluble in alcohol, slightly soluble in oil of turpentine and petroleum; insoluble in ether, chloroform, benzole and bisulphide of carbon. Dilute acids resolve it into *turpetholic acid* and glucose. Conc. sulph. acid dissolves it with a red color, which subsequently becomes brown and finally black. By the action of caustic alkalies it is converted into *turpethinic acid* by combining with $2H_2O_2$. Both acids have been combined with bases, the latter forming amorphous, the former crystallizable salts. The following is the composition of these principles: *Turpethine* $C_{68}H_{46}O_{32}$; *turpetholic acid*

$C_{32}H_{32}O_8$; *turpethinic acid* $C_{66}H_{60}O_{36}$. Jalapin (Mayer) and scammonin (Spirgatis) have the same composition as turpethin; jalapic and scammonic acids are $C_{66}H_{56}O_{36} \cdot 3HO$; jalapinolic and scammonolic acids $= C_{32}H_{30}O_6$. Ann. Ch. Ph., July, 1866, 41—62.

Menyanthin, according to Kromeyer, has the composition of $C_{60}H_{46}O_{28}$. When heated with dilute sulphuric acid it is split into glucose and *menyanthol*, an ethereal oil of composition $C_{16}H_8O_2$, which possesses the odor of oil of bitter almonds, and, like it, is rapidly converted into an acid by the action of caustic alkalies, which the author proposes to name *menyanthic acid*, but has not examined further. Viertelj. Ph. xv. 454.

Coriamyrtin, according to Ribau, is decomposed when treated with fuming hydriodic acid. A soft black body is deposited, which, when well washed with water, dissolved in alcohol and treated with a few drops of concentrated solution of soda, assumes a beautiful purple color. This affords a very delicate test, and may be applied with advantage in toxicological researches. Ch. C. B. 1866, 973.

By the action of bromine on coriamyrtin the same author obtained *dibromo-coryamyrtin* ($C_{30}H_{34}O_{10}Br_2$), which is crystallizable, anhydrous, sparingly soluble in water, freely soluble in boiling alcohol, and of an intensely bitter taste. Chlorine acts in a similar manner on coriamyrtin. With soda and potassa, it forms decomposition products; by lime and baryta it is converted into an acid, which remains in combination with the base. It is also decomposed by strong mineral acids. Ch. C. B. 1867, 91.

Scoparine. Hlasiwetz classifies this principle in the quercitrine group, as it yields, like quercitrine, by the action of caustic potassa, protocathechuic acid and phloroglucin. J. prakt. Ch. xcvi. 213.

Cantharidine. Bluhm finds that, by the treatment of powdered flies with magnesia, a basic crystallizable compound of magnesia and cantharidine is formed, which possesses the property of blistering in about as high a degree as pure cantharidine. He concludes that cantharidine is not as indifferent as has been

supposed, and that it has a decided tendency to form basic salts. The magnesia compound has an alkaline reaction, is soluble in water, insoluble in ether and chloroform, but dissolves more readily in hot oil than pure cantharidine. *Viertelj. Ph.* 1866.

CHROMOGENES.

Alcanine is prepared by Prof. Heintzel by extracting alkanet with petroleum ether, and allowing the solution to evaporate spontaneously. *Ph. Zeitschr. Russ. Sep.*, 1866, 383.

Alizarine and Purpurine. Bolley has made extensive researches on these coloring matters, with a view to the determination of their equivalents, the products of decomposition and their relative value in the art of dying. *J. prakt. Ch.* xcix. 305.

Chlorophyll. Frémy, has obtained some interesting results by the action of alkalies and alkaline earths on this substance, by whose agency he has succeeded to split it into *phylloxanthine* and *phyllocyanic acid*. He concludes the chlorophyll reacts with bases like fats, the phylloxanthin representing glycerine, and the phyllocyanic acid the fatty acid. *Phylloxanthine* is neutral, insoluble in water, soluble in alcohol and ether. It crystallizes in yellow scales or reddish prisms, and possesses strong coloring properties. Concentrated sulphuric acid, produces a magnificent blue color.

Phyllocyanic Acid is also insoluble in water, but soluble in alcohol or ether, with an olive green color. All its salts are brown or green, those of the alkalies only being soluble in water. It is dissolved by sulphuric acid, with a green, red or blue color, according to the density of the solution. *J. prakt. Ch.* xciii. 246.

Curcumine. The property of boric acid to communicate a brown color to curcuma, and the fact that mineral acids, subsequently added, deepen the color, induced Schlemberger to investigate the nature of the reaction. He found that by the combined action of boric and mineral acids on curcumine, a new compound was produced which he proposes to name *rosocyanine*, in consideration of the colors it produces. It is, when pure, in the form of needles, of a greenish color, soluble in alcohol with a

splendid rose red color. It is a very stable compound, insoluble in water, pure ether and benzole, and forms with metals blue compounds. Ch. C. B. 1866, 964.

Indigo. According to a communication by Bolley, in J. prakt. Ch. xcix. 331, a new coloring matter has been discovered in indigo, by Crinzos. It is sparingly soluble in cold, more abundantly in boiling water; soluble in caustic potassa and sulphuric acid, and from the latter solution not precipitated by dilution with water. It is volatile at 130°C , and contains no nitrogen.

Isatine. In consideration of the scanty knowledge we possess of the chemical history of indigo blue, Bæyer and Knop, have instituted a series of experiments on *isatin*, one of its derivatives. By the process of oxidation they failed to arrive at any satisfactory results; but on adopting the plan of reduction, they succeeded in obtaining two new bodies, which they regard as HO, substituting H of the group $\text{C}_8\text{H}_7\text{N}$, for which they propose the name *indol*. These products would then be *oxindol* $\text{C}_8\text{H}_6\text{N}(\text{HO})$ and *dioxindol* $\text{C}_8\text{H}_5\text{N}(\text{HO})_2$ ($\text{C}=12$, $\text{O}=16$.) They combine with or form substitution compounds when treated with chlorine, chlorhydric acid, bromine, nitric acid, etc. Ann. Ch. Ph. Oct. 1866, 1.

Schief has obtained a number of new compounds by passing SO_2 into alkaline solutions of isatin. A number of salts were obtained, in which he assumes the presence of isato-sulphurous acid; they were obtained by direct combination with alkaline disulphites. Ch. C. B. 1867, 89.

Orcin is found, by V. de Luynes, to unite with acids in a similar manner to which it unites with bases. He succeeded in forming compounds with chloro-acetyl, chloro-benzoyl and chloro-butyryl, and concludes a similarity to phenylic acid in its relation to acids and bases.

Chromogenes of Roccella tinctoria and R. fuciformis. These have been made the subject of investigation by Hesse, who finds that the chromogene of *R. tinct.* is *lecanoric acid*, and that of *R. fuciformis* is *erythrin*. Both of these chromogenes yield *orselic acid* by the action of BaO, with formation of carbonate of the base. Lecanoric acid combines with Br, forming di- and tetra-

bromo-lecanoric acid; by boiling erythrin with amylic alcohol, orsellate of amyl and pikro-erythrin are formed. Orsellic acid is most economically prepared from erythrin. It combines with Br, forming di-bromo-orsellic acid. By the action of dilute acids it is converted into orcin. Ann. Ch. Ph. July, 1866.

Morindin, prepared by sublimation from an extract of the root of *Morinda citrifolia*, is found by Stenhouse to be identical in all its properties with alizarine. By boiling the morinda root in dilute sulphuric acid, the morindin is readily converted into alizarine, and the author recommends it as a profitable source for that substance. J. prakt. Ch. xcvi. 127.

PROTEINE COMPOUNDS.

Glue. Moffat states that the best test for judging the quality of glue is to convert its nitrogen into ammonia, and estimating this by collection in dilute sulphuric acid. The ammonia is readily formed by heating the glue with soda-lime.

Albumen. Dr. R. Theile has examined albumen, with a view to the determination of the products of decomposition produced by caustic potassa. By the action of caustic alkalies he obtained, besides leucine and tyrosine, a reddish-brown body, of composition $C_8H_9O_7N$, freely soluble in 90 per cent. alcohol, and a reddish-brown body of composition $C_8H_9O_4N$, insoluble in 90 per cent. alcohol; also a flocculent matter, containing the elements C, H, N and S. He examined albumen prepared from eggs by a process which insures a product of constant composition, for which see Ch. C. B. 1867, 305.

Blood. Dr. Samuel P. Duffield, in his testimony in a murder case, decides that it is extremely difficult to distinguish the blood of the mammalia from one another when the blood has become very dry, as the corpuscles shrink very much. A. J. Ph. xxxviii. 478.

Pepsin. A commission, consisting of MM. Guibourt, Regnault and others, have been appointed by the Pharm. Society of Paris to report on a method for preparing pepsin which shall yield a uniform product, with a view to its adoption as an official. The commission has adopted a process devised by Boudault, according

to which it is made from recent sheep stomachs by brushing off the inner coating, allowing the magma to stand two hours, expressing, and subjecting the liquid to the action of sugar of lead. The resulting precipitate is washed, suspended in water, treated with sulphhydric acid, filtered, and evaporated in flat dishes at a temperature not exceeding 45° C. An extract results of an amber color, slightly translucent, soluble in water, with 2 per cent. residue. Viertelj. Ph. xv. 570.

VEGETABLE CHEMISTRY.

Ozone produced by Plants. According to carefully conducted experiments by Prof. Daubeny, it appears that green foliage, in assimilating carbonic acid, water, &c., liberates a portion of the oxygen as ozone. A. J. Ph. xxxix. 222.

The theory of Mulder as to the importance of dextrine in young plants in the formation of gums and cellulose, is disputed by the experiments of A. Busse, who finds that it does not exist in all amylaceous or gum-producing plants, and in such in which it is found it exists only in minute quantities. The universal presence of sugar in young plants prompts the author to the opinion that to it must be attributed the functions which Mulder supposes dextrine to exercise. Arch. Ph. cxxvii. 214.

The action of Foliage. Boussingault, by his investigations, has determined—

1. That leaves exposed to sunshine in pure carbonic acid do not decompose this at all, or only with extreme slowness ;

2. In a mixture with atmospheric air, they decompose carbonic acid rapidly, and the oxygen of the air appears to play no part in this ;

3. Leaves decompose carbonic acid in sunshine as readily when this gas is mixed with N or H ;

4. Oleander leaves, capable of reducing 1 litre of carbonic acid per hour in the light, produced but $\frac{1}{10}$ litres per hour in the dark ;

5. The air contained in leaves is composed of 88.01 N, 6.64 O, and 5.35 carbonic acid, having the same composition as air from well-manured soil ;

6. The carbonic acid absorbed by leaves, and decomposed along with water in sunlight, furnishes glucose, which, in fixing or abandoning the elements of water, forms the various hydrates of carbon, such as starch, sugar, cellulose, &c. A. J. Ph. xxxviii. 461.

The same author has determined that the upper surface of leaves is capable of decomposing a much larger amount of carbonic acid than the lower; and that if one side of the leaf be covered with some substance that prevents access of light entirely, the relative amount of carbonic acid decomposed is larger than if both sides are exposed at the same time. Ch. C. B. 1867, 101.

In closing this report, the Chairman desires to return thanks to the Association for his appointment, and trusts that any short-comings will meet with charitable consideration.

C. LEWIS DIEHL, *Chairman*.

REPORT OF THE COMMITTEE ON THE DRUG MARKET.

New York, Sept. 10, 1867.

The Committee on the Drug Market, appointed by the American Pharmaceutical Association at their last annual meeting, at Detroit, Mich., have attended to the duty assigned them, and beg leave to present the following Report:—

Your Committee found themselves under some embarrassment at the outset, from the fact that by Article 4th of our Constitution, in relation to the Standing Committees, in Section 1st, this Committee is recognized as one of the Standing Committees of the Association, but in the following sections of the article, unlike all the other Standing Committees—who have specific duties prescribed—no mention whatever is made of the duties of the Committee on the Drug Market. Your Committee, therefore, were left without instructions, to subsidize whatever might legitimately come within the purview of such a committee; i. e., to

take cognizance chiefly of products pertaining to Pharmacy, and to eschew notice of collateral matters in the general drug trade, such as paints, dye-stuffs, &c. Nevertheless, it may not be unbecoming to deplore the vast increase in the numbers and sale of secret proprietary compounds, and popular medicinal nostrums. It is a matter of deep concern to your Committee—and it must be to every member of this Association—that with the increasing intelligence of our people medical empiricism and quackery should keep pace, and that so large a proportion of the drug trade should be made up from the traffic in the products of ignorant cupidity, and bold-faced charlatanry.

With a view of accomplishing something of practical advantage to the Association, the Chairman of your Committee, after a verbal conference with the Chief Appraiser of Drugs at the port of New York, addressed to him the following letter, and, through the other members of the Committee, the appropriate officers of the custom-houses in Boston, Philadelphia, Baltimore, and Chicago have been similarly addressed, either verbally or in writing :

“ New York, May 23d, 1867.

“ O. S. BARTLES, M. D.,

“ U. S. Appraiser of Drugs, Port of New York.

“ *Dear Sir,—*

“ Having been made Chairman of a Committee on the Drug Market at the last annual meeting of the American Pharmaceutical Association, I am desirous of presenting as full a report as practicable at the next annual meeting, which takes place in this city, on the second Tuesday in September ; and knowing that your position enables you to assist me in presenting a report that shall reflect honor upon our city, I beg leave to ask of you statistical information upon the following points, to wit :—

“ 1st. What crude medicinal drugs have been imported into the port of New York during the year commencing August 1, 1866, and ending July 31, 1867 ? What quantity and value of each ? In the term Drugs I mean to include all the medicinal flowers, leaves, gums, roots, barks, balsams, &c., i. e., whatever medicinal articles that may have come to our port *in their natural state*.

"2d. What manufactured articles, of a medicinal character, have been imported during the same period into New York? and what quantity and value of each?

"Under the head of *manufactured* medicinal drugs I mean to include all extracts, essential oils, tinctures, syrups, spirits, essences, plasters, ointments, and whatever can be fairly classed with medicines that may have come to our port *in a manufactured state*.

"3d. What leading chemicals, used alike in the practice of medicine and the arts, have been imported during the same period into New York? What quantity and value of each?

"Under this designation the intention is to include borax, sal soda, bicarbonate soda, iodide potassium, chlorate potash, sugar lead, &c. The fuller the information embraced under this and the two previous inquiries the better.

"4th. What *crude* drugs have been rejected? for what particular reasons? and what quantity of each?

"5th. What *manufactured* medicines have been rejected? for what cause? what quantity of each?

"6th. What chemicals, used alike in medicine and the arts, have been rejected? for what particular cause? In what quantities severally?

"By furnishing the information sought, as far as practicable or convenient, you will confer an invaluable favor upon the American Pharmaceutical Association, and also upon the writer, who will be happy to remunerate you for the labor bestowed.

"Very respectfully, your obedt. servant,

"WM. A. BREWER.

"P. S.—Any suggestions you may find time and inclination to make will be highly appreciated."

To this application no response had been made up to August 26th, when, on application at the Appraiser's office, Dr. Bartles replied that he had been quite ill himself, and for many weeks had sickness in his family, that together had withdrawn him from attendance at his post, excepting so far as necessary to adjust the pressing items of official business, and that he had accomplished nothing in our behalf.

Under these circumstances application was immediately made to the Statistical Clerks at the Custom-house, in order to secure, if possible—even at so late a day—the desired information. What result has been obtained from this renewed effort will appear in a subsequent part of this report.

GENERAL VIEW OF NEW YORK DRUG MARKET.

The importations of drugs into the port of New York from foreign countries, during the year ending July 31, 1867, have, as usual, been very large. We are unable to speak definitely of the amount, either in quantity or valuation, as compared with other years. We should, however, incline to the belief that they would not come up, in either of these particulars, to the importations of 1865-66, upon the close of the civil war, which had diminished importations for several years prior to that period. The withdrawal of American shipping, the increased cost of freights in foreign bottoms, and the high premium on gold, all contributed to this result.

The wants of the Southern section of our country during the war had chiefly been supplied by foreign and domestic adventurers, through the means of blockade runners; and the risks of this species of illegitimate trade, coupled with the cupidity of those engaged in this contraband traffic, induced the parties concerned in it to export from abroad, and to import to the South very many deteriorated and factitious articles of medicine, because of their price, that in case of seizure their losses might not be so great. The consequence was, the South was but scantily supplied with medicines, and very many of those they had were of inferior character, and such as would not have been used in times of peace.* Hence, as the war closed, the demand from the South was unusually large, and importations at New York, as well as the other principal ports of entry, were greatly stimulated.

* Many of the articles of this depreciated character were seized, at various times, by our naval and military forces, and at prize sales, under authority of the United States Government, were sold, for distribution through the community. It is interesting to inquire—Who bought them? to whom have they been administered? Were not the authorities morally bound to have destroyed them?

Our market has had several very considerable importations of *rhubarb root* direct from China. Some from Shanghai was packed in unusually large cases, containing several hundreds of pounds each; the roots were quite small, and had the appearance of immaturity; and it has been said that the extractive matter had more of the astringent, and less of the cathartic quality predicable of good, mature Chinese rhubarb.

A large importation of rhubarb direct from Whampoa was of great solidity, fair external appearance, but in greater or less extent was darker than is considered desirable when broken. And it is a question of some interest how these various qualities should have become combined.

Of true Russo-Turkish rhubarb, there has been little or none imported of late. Indeed, advices from abroad give us to understand that the inspection of rhubarb under governmental authority and certificate, ceased some three or more years since. Hence, only small remnants have occasionally been secured at some of the continental cities of Europe, some of which have found their way to this country through the London market. But it is now pretty safe to conclude that we shall have no more of this article of genuine character, and that what may be offered in the market will at least be of doubtful integrity.

While upon the subject of rhubarb, we would state that there has been a quantity of the root of American growth sold in the New York market, which was grown in Cambridge, Mass. The party who raised it is said to have been somewhat covertly engaged in the business for several years, and to have disposed of the product mostly to a Boston drug house. But last year, his product having been about five hundred pounds, he made arrangements for its sale through a botanical drug establishment in New York. Its exterior closely resembling the China rhubarb, together with the comparatively low price at which it was offered, enabled the holders to find a ready sale for it. We have had no opportunity of testing its merits, but have been told that, unlike the Shanghai root already alluded to, the cathartic property prevails almost to the exclusion of the astringent principle. We will only add in this connection, that the grower of this article, as we hear, is so encouraged by the traffic, that he is

about to sell out his estate at Cambridge, and go to the West, to plant a large tract with this rhubarb.

Calisaya Barks have been imported into New York in very considerable quantities and of very variable qualities. Some parcels have possessed a dull, dark-reddish color, and had an old and musty taste, with comparatively little strength.

Kino has been imported in considerable quantity, and its fine appearance has led many to suspect its genuineness. The authorities of the present day rather magnify the quality of gelatinization as one of the inherent characteristics of the true gum kino. But it is a matter of interesting inquiry, whether the books have not been shapen to conform to the Australian gum, which has been current for the last two or three decades, and which is only partially soluble in alcohol. The kino alluded to of recent import is entirely soluble, and approximates in character and general appearance to the article current in the shops forty years ago; and a specimen of a recent importation from London has been placed upon your exhibition-table for examination and analysis, if thought expedient.

Castor Oil has come to market more freely from the West of late, and it has generally been of good character. It is to be hoped that producers may find the luxuriant soils of our own country will afford them ample remuneration for raising the *Ricinus* plant, and producing the seed at so low a cost, that the foreign seed and foreign manufactured oil may be entirely excluded. We should not be dependent upon other countries for the product of a plant so easily cultivated as the "*Palma Christi*."

Cod Liver Oil comes to the New York market in large quantities. But there is very little doubt but that a very considerable portion of that which is denominated "*Shore Oil*," is scarcely cod liver oil beyond the name. Pollock and Hake are too plenty upon our eastern shores for the manufacturers to avoid the temptation to subsidize their livers for adulterating their so-called cod liver oil. The best article comes to us from reliable parties in Newfoundland; and during the past year the supply of this has increased, and it is to be hoped will hereafter be entirely ample.

White Wax of many brands is sold in the New York market. Some brands are believed to represent unadulterated, bleached beeswax; while others, though even more pretentious as to purity, are believed to contain more or less of tallow, Japan wax, and oftener paraffine. The emollient qualities of beeswax in unguents are sufficiently known; but regarded only as an excipient, to give consistency to ointments, it is certainly harmless. Can the same be said of each and all the afore-mentioned adulterations? At all events, does not the ethics of pharmacy, if not of trade, forbid the use and sale of these sophistications in our shops?

Alcohol is one of the most important agents in the laboratory of the chemist, and in the shop of the pharmacist, and it is one that occasions much inconvenience by its constant fluctuations in market price—sometimes touching a point that is scarcely more than sufficient to pay the government tax on the spirit from which it is made. It seems proper enough, as a merely commercial consideration, that like other commodities it should be bought at the minimum market rates; and yet there is a question of loyalty involved in this, even though the packages be duly fortified with the brand of the officials of Internal Revenue. At all events it is felt to be unsafe to purchase in any considerable quantities, lest there should after all be some liability to seizure and confiscation. It seems very desirable that the tax on whiskey should be so far reduced as to remove the temptation to frauds upon the Government. Could not this Association accomplish something to this end?

There is perplexity in the minds of some purchasers as to the strength of alcohol sold in the market as 95 per cent. We are told that alcohol branded as standing at 88 per cent., when tested at distillation by the instruments authorized and employed by the Internal Revenue Department, is equal in strength to alcohol standing at 95 per cent. by the hydrometers formerly in use. If this is so, would it not be well to have some authoritative statement to this effect emanating from this Association?

Spirit of Nitre. There is a diversity of practice among druggists in the sale of this article—some, as a general rule, selling

that denominated F.F.F., while others usually sell the F.F.F.F. Ought not some Associational sanction be given to the employment of one or the other of these descriptions in pharmaceutical practice?—and thus an influence towards uniformity among druggists be promoted as to the fulfilment of orders from their customers.

Ants' Eggs. There has been—which to many of us may appear as novel—an importation of some thousands of pounds of ants' eggs, which were formerly recognized in Germany and some other European countries as an important article of commerce, as forming the base of an ethereal liquid, known as the Spirit of Ants. We mention this rather as a matter of curiosity, than as a matter of much practical bearing on the objects of the Association. A very small specimen of this commodity has been placed upon your exhibition table for examination. Formic Acid is supposed to be the chief chemical element of this commodity.

We will only add, under this general view of the New York market, that the foreign drugs imported have been generally of good character, very few having been rejected by the examiner at the Custom House, as we are told by the officials connected with the division that have cognizance of these matters.

Indigenous products, such as roots and barks have been more than usually abundant, as parties at the South have largely engaged in gathering them since the cessation of the war. Essential oils have been brought to market pretty freely, but very considerable quantities of wintergreen have failed to answer the test for purity. The same is true of much of the peppermint, sassafras, tansy, &c. New Jersey has maintained her notoriety for adulterated spearmint, horsemint, &c. If purchasers would apply the most rigid tests, and refuse to buy impure and sophisticated essential oils, we might hope that manufacturers would learn a lesson of wisdom, and forbear to spoil their products by extending their volume with cheaper if not injurious adulterations.

The Drug business of New York for the year 1866 was not as large as that of the previous year, owing in considerable degree to the fact that the Southern trade over-purchased the year previous, and their financial ability was restricted. Neither was the

business so profitable. This was in a considerable measure owing to the fall in the rate of gold, which depreciated the values of stock on hand. Still the trade have held their own remarkably well, and there have been no failures among the wholesale dealers. The retail trade has been remunerative as far as could be ascertained; and the character of the dispensing establishments has been steadily rising.

With these remarks, we will refer the Association to the table of statistics derived from the Custom House, at the close of this report.

GENERAL VIEW OF PHILADELPHIA DRUG MARKET.

The Philadelphia Drug Market presents no remarkable features this year. The supply of drugs has been good, and quite equal to the demand. Prices have been generally well maintained. The wholesale dealers have not noticed the activity in trade, which is desirable in all kinds of business. The quality of drugs offered in the market for the past year has been very good.

The majority of dispensing druggists and pharmacutists in this locality exercise commendable care and discretion in the selection of their stock, and reflect credit on their profession. This exercises a beneficial influence, in turn, on the wholesale dealer.

Considerable amounts of indigenous roots are received in this market, by parties doing trade with Western Virginia. Some of these have declined materially in price, in consequence of the increased supply, and are getting down to something approximating the old prices, especially mandrake, serpentaria, and seneka. The same is true of wild cherry bark.

Philadelphia has always taken the lead in the manufacture of chemical and pharmaceutical preparations. It would have been very interesting to have had a statistical table of these products, but the member of your Committee resident there has found it impracticable to obtain such an one this year; suffice it to say that the amount is very large, and the quality good. The manufacturers in this department are, without exception,

ambitious to make and preserve a reputation for excellence in the character of these articles.

Considerable difficulty has been experienced in the sale of preparations requiring the use of alcohol, in order to compete with other localities. Early in the present year, a meeting was called by the Philadelphia Drug Exchange, of all persons interested in the use of alcohol, when it was resolved to sustain the government in its efforts to enforce the revenue laws. As a consequence, alcohol, in this market, has always commanded a price above the government tax, whilst in other localities it has been sold from \$1.00 to \$1.50 below the price per gallon here. Therefore, the manufacturing chemists of Philadelphia labored under great disadvantage. This, we are glad to find, is likely to be only temporary, as the authorities, at the present writing (August, 1867), have so far succeeded in stopping the contraband traffic in other cities, as to make the price almost uniform to this.

Among the manufactures of chemicals, we notice preparations of soda from the mineral cryolite, obtained from Greenland. By a very simple process it is converted into soda ash and the carbonates of soda, and it is to be hoped that, in course of time, we can be quite independent of the English market for these important articles.

Importations of drugs do not, by any means, represent all the foreign articles that are bought or used in Philadelphia, as very large amounts come through the port of New York; as, for instance, large quantities of Peruvian bark, which is used by the only manufacturers of quinine in the country, who are located in this city. Through the kindness of Lorin Blodgett, General Appraiser of the port of Philadelphia, we are enabled to present a list of importations for the year 1866. We have been informed by Edw. Pollitt, Drug Inspector of this port, that he has not had occasion to reject any drugs that have passed through his hands.

We notice an importation of rhubarb to New York, called China rhubarb. It came direct from Shanghai to a first-class house, who insist that it is China rhubarb. In appearance it resembled the old-fashioned English rhubarb more than anything we have seen. The pieces were roundish; weighing about from one to

two ounces; quite regular on the surface; two or three inches long, by about an inch to an inch and a-half in diameter; of a reddish fracture; much lighter than any specimens of Chinese that we have seen of late; its texture was spongy; odor not so aromatic as the Chinese; in taste, the astringency predominated; and altogether it was an inferior variety of the root. In the specimen examined by us, it yielded about 41 per cent. of hydro-alcoholic extract, which was strongly astringent; ten grains, on being administered, produced a slightly cathartic effect.

A tabular statement of the importations into the port of Philadelphia will be found at the close of this general report, in connection with the statistical tables for New York, Boston, Baltimore, &c.

GENERAL VIEW OF THE BALTIMORE DRUG MARKET.

The Baltimore Drug Market presents no new feature of remarkable interest since the last report. The position then assumed by the apothecaries, elevating the standard of the quality of drugs and medicines, is persistently maintained, with the most gratifying results. The Maryland College of Pharmacy continues to exercise a beneficial influence among its members, by increasing the harmony of their social relations, and in concentrating their united energies to the advancement of pharmaceutical knowledge. The young men of the profession now aspire to become students and graduates, and devote much more time to study and labor in their profession. Some of the more energetic members of the College have volunteered to receive students from distant localities into their stores for the scholastic term of the College, and we understand their enterprise promises very fair success.

The manufacturing interest is on the increase. A company of gentlemen has recently established a factory for the manufacture of white lead, dry and in oil, and the extensive plan upon which it is organized is based upon an increasing trade. Three establishments for the manufacture of sulphuric acid are in full and active operation, and another is in contemplation.

The manufacture of some of the minor chemicals has been commenced. Pharmaceutical and Galenical preparations are

prepared in quantities to supply the wholesale trade. Two factories, in steady operation, manufacture druggists' glassware. Bi-chromate of potash is made in very large quantities.

Domestic herbs, roots, barks, and oils, from the interior, continue to arrive in the usual quantities, and vary but little in quality. Of sassafras bark about 100,000 lbs. were received of average quality,—not over 3,000 lbs. being strictly prime. About 20,000 lbs. of sassafras oil were received, none of which was discovered to be impure; still in color it varied from pale red to crystal clearness. Of Baltimore oil wormseed, no mixed lots were known to be offered this year, the low prices not being remunerative to the growers; very little will be produced excepting on contract, as on those conditions alone would many of the producers agree to plant.

The following is a list of roots, barks, oils, &c., received from the interior into Baltimore,—viz.:

Bayberry Bark,	Cohosh Root,
S. Elm “	Star “
Sassafras “	Dewberry Root,
White Oak “	Amer. Sarsaparilla Root,
Red Oak “	May-apple “
Lobelia Herb,	Virginia Snake “
“ Seed,	Spikenard “
Oil Wormseed,	Pink “
“ Sassafras,	Pink (with tops) “
“ Pennyroyal,	Blood “
Twin Root,	Blackberry “
Seneca Root,	

With these general remarks upon the Baltimore Drug Market, we would refer the Association to statistical tables of the imports of foreign drugs and chemicals into the port of Baltimore, and exports of medicines and drugs from the same,—both being for the year 1866,—at the close of this report.

GENERAL VIEW OF BOSTON AND CHARLESTOWN DRUG MARKET.

Boston, Sept. 2d, 1867.

To WM. A. BREWER, Esq., Chairman.

Sir,—

As a member of the Committee appointed to make a report to the American Pharmaceutical Association on the state of the drug market, I have endeavored to do what I could to assist you in the discharge of that duty for the past year, and am happy to say that I have been more successful in obtaining the necessary statistical information this year, of imports into this district, than I was last year, when I was prevented from making the report by reason of not being able to collect the information in time to make a report of value.

But this year I have to express my satisfaction in the choice the Association has made of a chairman, thoroughly competent, willing and prompt to discharge the duty, and present to them a finished report.

So far as I have any knowledge, no report has been made to our Committee of adulterations or sophistications that has required us to report through the pharmaceutical journals.

The fluctuations in supply and demand of drugs have ruled very much as in years past, and the temporary derangement in consequence of our political troubles has given place to more regularity in the supply and uniformity of prices compared with the few past years. The present high prices of most drugs are consequent upon a high tariff, and the price of gold, which must always affect the value of any article of merchandize, and as these effects are well known and easily calculated, it will be readily seen that, under existing circumstances, the values of imported drugs are as low as could be reasonably expected, and the supply of most articles fully equal to the demand. To be sure, scarcity, speculation and monopoly have had more or less to do with the prices of many articles, but perhaps not more so than in former years. For the past year, druggists and apothecaries having confined themselves more to the immediate wants of their trade and less to the accumulation of stock, there has been a tendency to reduce prices to merely a remunerative profit,

acting as a preventive to speculation ; and this, together with a more uniform supply, has operated to equalize and very much reduce the prices that ruled the market even one year ago.

The advance in price of all merchandize and labor is undoubtedly owing to the world's progress, particularly in the great attention paid to the mining of precious metals, the enormous increase of specie making money so much cheaper ; or, that being the standard of value, makes a corresponding increase in the value of other merchandize. All this, together with the increased facilities of transportation, and the amount of labor performed, and time saved by the application of machinery, and the continued increase of new and important inventions, has tended to unsettle all the old notions of relative values. It is doubtful if ever we return again to low prices, cheap labor, and the hard toil that characterized the earlier days of our older members.

As far as I am able to judge, there is, on the whole, a marked improvement in the quality of goods to be found in the market. By this I mean that those persons who know and really desire to obtain articles of fine quality, have much less difficulty in doing so now than formerly ; but those persons purchasing drugs, being ignorant of the qualities, and regulating their purchases more by the prices, find the same perplexities in trade now, sophistication, adulteration, deception, and all manner of low grades in quality being the common result of temptation and ignorance to compete in price.

It makes a great difference to even a shrewd purchaser how he puts the question to an importer or jobber. Should he ask, How low can you sell me such an article ? he is shown or priced quite a different article than he would be if he asked, Have you a very nice quality of such an article ? It is rendered still worse if he merely prices a list of articles without asking about or examining the qualities, which is very often the case.

These different ways of stocking a store, or purchasing goods, accounts for the widely different views which pharmacutists take of the market. Some have very little trouble about quality, and see and know but little of the common adulterations and sophistications. The shrewd vender usually knows his customer, and sells him those articles which he can at the least trouble and

the greatest profit. And this I say without raising the question of honesty, but simply on the general rule of supply and demand, the sale being usually made upon the judgment of the customer or pharmacist. Yet I make these assertions in no way as an excuse for palming off inferior qualities upon ignorant apothecaries, or pandering to the wishes of reckless or dishonest traders in those articles, which should be remedies for disease. But this I do say, that with us, as competent pharmacutists, standing as we do between the producer and the consumer, rests the responsibility of making the quality of drugs and medicines. If we make a demand for pure and reliable drugs, the market will be supplied with them. If we reject goods of poor quality, no matter what the price may be, the supply soon ceases where there is little or no demand.

In this connection I would remark that there is as much difference in men as in drugs. It is our first duty to judge of the quality of the men of whom we buy, always giving the preference to those who are honest and reliable, good judges of the articles in which they deal, and who deal in the best quality of goods. Our next duty is never to place a temptation before them to sell us such articles as we ought not to buy, and they ought not to deal in, but make it for their interest to do what is right, and then the most selfish man, from interest, will pursue an honest course.

From the statements here made the Association can easily see why it is so difficult to get a correct report upon the state of the drug market. Many of us to whom this work may be entrusted would see or hear of but very little adulteration, or poor quality even. Such articles are seldom offered to many of us, and dealers very rarely call the attention of a good judge, who never buys a poor article, to such goods. But with many of our members even, I fear the reverse is the rule, instead of the exception.

Alcohol. There has been more variation in the price and quality of this article during the past year than ever before, or than with any article in which we deal.

The enormous revenue tax raised the price to such a point as to prevent its consumption for many common purposes in the

arts, and produced a great change in our business as pharmacutists. The quantity of alcohol sold and consumed by apothecaries is very small compared to what it was before the tax was laid upon it, and the enormous cost of alcoholic preparations of late has very much reduced the demand for them.

Although the tax upon alcohol is nearly four dollars per gallon, the prices at which it has ranged during the past year have varied all the way between two dollars and seventy-five cents and four dollars and fifty cents per gallon, in Boston, and of course all alcoholic preparations have had a corresponding change in the cost, if not in the prices charged for them.

This great and continual fluctuation in the price of alcohol keeps the prices of chemical and pharmaceutical products unsettled, but the large manufacturers have preserved more uniformity than could reasonably be expected, and it has given them great opportunities to vary their prices at times from published market rates. In this connection it should be recorded, to the credit of some of our large manufacturing chemists, that they have steadily refused to use any alcohol which has not paid the full amount of Government tax.

So far as I know, the drug trade has willingly submitted to remunerating prices on articles made with and from alcohol that has paid this tax, although probably four-fifths of all the alcohol sold has been placed upon the market without having paid the full tax.

It is now generally conceded that not more than one-fifth of the tax upon the amount of domestic spirit distilled is collected by the Government, which statement is abundantly corroborated by the price at which spirit is everywhere sold in the market. It is also the generally received opinion, that a tax so enormous, upon such an article, cannot be collected, and that more income could be realized by the Government if but half the present amount was levied.

No doubt the true policy is to reduce the tax one-half, but I very much doubt whether it could then be all honestly collected, because of the already demoralized state of the distillers and Government tax officers.

Tartaric Acid. The price of this article has receded about

twenty per cent. during the past year. A considerable quantity of powdered tartaric acid made its appearance in our market adulterated with sulphate of magnesia to the amount of from twenty-five to fifty per cent., and came into the market through sales made by the U. S. Government.

Bromine. It is said this article is now being produced in this country. The price is now less than one-half what it was one year ago, and its compounds, especially the bromide of potassium and bromide of ammonium, have suffered a corresponding reduction in price, yet during the past two or three years the demand for them has rapidly increased, and at the present time the consumption of bromide of potassium is fully equal to the iodide.

Arrow-root. Although the price of this article is less than it was, it is still high; but the demand for it is very small compared with the sale of former years.

Barks. The market is better supplied of late, at reduced prices, for nearly every variety. The cinchonas are sold at a less price, and new elm bark is coming into the market of very good quality, at reduced prices; and the same remarks apply to sassafras bark.

Burgundy Pitch. The market appears to be abundantly supplied, at very low prices, but I have not examined the quality.

Bay Water. This article, of good quality, remains very high and scarce.

Bismuth and its preparations have fallen somewhat in price, but still remain about five times their former value. The cause of this rise in price is scarcity, said to be occasioned by the large mine that supplies the market having become filled with water, so as to prevent working it.

Gum Arabic still remains high, although it cannot be profitably imported at present prices. The best quality is scarce in the market.

Camphor. There has been but very little fluctuation in price or supply of this article for a long time.

Opium. The price may be now stated at \$9.50 to \$9.75; during the past year it has touched a figure as low as \$8.30,

which is about the lowest point for five years past. Three years ago it reached a point as high as \$18.00, and twenty to thirty years ago the price ranged between \$2.50 and \$4.50. The crop of the last year was a large one, and it is expected the gold price for the coming year will be less than it is now.

Benzoin and Guaiacum. The market at present is in better supply, at quite a reduction in price.

Glass Ware. Of late years there has been a great improvement in quality, and, during the past year, quite a reduction in price; but the prices must still remain high compared with former years, owing to the price of labor and material. The present prices are far from remunerative to the manufacturers.

Roots and Herbs indigenous to this country are in far better supply, of good quality, and generally at greatly reduced prices.

Chemicals are gradually receding in prices, constantly improving in quality, and rarely adulterated. Competition in price and quality is daily establishing the reputation of our manufacturing chemists, and will have its corresponding effect upon those who choose and employ the various qualities that emanate from these establishments. It should be our aim to make a demand for high grades of quality, in both producer and what is produced, by ascertaining who are *reliable chemists*, and encouraging them by our patronage.

Turkey, or Russian Rhubarb seems to be an exception to the rule that demand regulates the supply. So little is *known* of the source and supply of this particular variety of the drug, that commerce seems powerless to supply the demand, unless Turkey rhubarb be created from other varieties by the hands of the artists,—and most educated apothecaries believe this experiment to be a failure. From some cause which I do not clearly understand, the true article seems destined to be unknown in the market for the future.

Iron. This metal still continues in favor with all medical men. Many new and valuable compounds have come into use of late, and its power to subdue our enemies and diseases remains unimpaired. The prices of its compounds suffer less fluctuation than that of any other *base*, and the protoxide and phosphates

are now extensively used as *bases* in the manufacture of several popular semi-proprietary fluids, and found to be valuable—to the proprietors.

Mercury. The price of this article has fallen very much during the past two years. The abundant supply of the metal in California would seem to indicate a much less price for it in the future, but some arrangement has been made with the principal source of supply there, by which it is regulated, and the price kept up. It could doubtless be produced for one-half or one-third the present price. The great demand for it is in the arts,—not so much in medicine as formerly. Calomel, formerly one of the leading articles in a drug store in New England, is now but seldom called for. Compared with other medicines, I should judge the sales to be less than one-tenth the amount they were twenty years ago.

Tartar emetic. The same remarks apply to this article, as to calomel.

Russia Isinglass is in far better supply than for some years past; is of good quality, and at a reduced price.

Alexandria Senna, of good quality, has become very scarce in our market.

Essential Oils, except sassafras, as a class, are high in price, more particularly the kinds distilled in the United States.

The oils of cloves, lemongrass, wintergreen, peppermint and spearmint are about three times the price they have at times been in former years, and generally the qualities are better than in times past. We may say that volatile oils are now readily obtained pure, and of good quality, in this market.

Castor Oil. The demand for this article by apothecaries is far less than formerly, and there has been quite a decline in price the past year; yet, owing to the price of labor, gold, and the duty, the market value is now about four times what it has been at times in former years.

Olive Oil is about double the price it was years ago; quality about the same as formerly.

Cod-liver Oil. There has been less demand for this article the

past year. Grades of ordinary quality, called "medicine oil," have been in abundant supply, at a low price, but oil of fine quality has been scarce, and meets with a ready sale. With consumers, it is the quality of the article that regulates the demand. The amount imported and manufactured in New England is very large; I have been unable to collect reliable statistics.

Powders. I am happy to say now that the Pharmacopœia states definitely the fineness of the powders wanted, that they may now be procured readily, of any degree of fineness, of good quality, and cheap; so that there is no longer an excuse for defective percolation, or any great variation in the strength of pharmaceutical preparations.* In this respect particularly, and in regard to quality generally, we may say that the drug market has manifestly changed for the better within comparatively few years.

Soda. This article, in its various forms and combinations, next to alcohol may be considered the leading article connected with our business. You will not fail to notice the immense importations of this article, and what a change of base has taken place between the potassa and soda salts. I refer to commercial names and commercial articles, saltpetre and salæratum in particular. Saltpetre was not long since nitrate of potassa; now it is nitrate of soda, and mixtures in various proportions of nitrate of potassa, nitrate of soda, and chloride of sodium. Salæratum was once impure sesqui-carbonate of potassa in various states of carbonization, purity and refinement; it is now bi-carbonate of soda, when of good quality, but commonly a mixture of impurities, from soda ash up to a true bi-carbonate. The great demand for soda is for the arts, by people who know what they are using; but who shall tell the story as to what commerce furnishes the community through the grocers, that goes into the stomachs of people to make business for us? Ought we not sometimes to look into the commerce of the grocer, and report to our customers as to the quality and adulteration of articles of the Pharmacopœia which they procure from other sources, to their own in-

* This change has been effected by some men now engaged in producing these powders.

jury, and our benefit? I think we ought; and I would suggest that a prize of \$50 be offered for the best essay upon the uses, abuses, and adulteration of articles of the Pharmacopœia sold by grocers as condiments, and articles of food.

Also, that a prize of \$50 be offered for the best treatise upon alcohol, wines and spirits used in the drug business, relating to commerce in quantity and quality, and as a vehicle and remedial agent.

In making this report, it is with pleasure that I acknowledge the valuable services of the polite and efficient Drug Examiner of the district of Boston and Charlestown, Mr. Isaac T. Campbell, a member of this Association, and in sympathy with its aims and objects. Without the accompanying schedules, furnished by him, this report would be of little or no value. The amount of care and labor bestowed upon them entitles him to the thanks of every member. As it may be years before we shall again get such documents for publication, without a considerable appropriation of money to defray the expense, I have endeavored to make them as accurate and reliable as possible; yet I fear there are many important omissions, that would swell the imports of this district to a much larger amount.

The schedule of values is made up with the cost value at the ports of shipment, reckoned in gold in United States currency, duties not added, which would make the value of these goods imported into Boston the past year between six and eight millions of dollars, duties and expenses paid.

Annexed to this, I have submitted the schedule of imports, the quantities made up by quarters of the year, to show the regularity of the importations of some articles, and the irregularity of others; also to show at what season of the year some of the articles usually arrive at this market. By accident, the article of Castile soap was returned to me in one amount for the whole year. I have made but one schedule of value for the entire year.

Hoping that my endeavors to assist you in making up a valuable report will receive your approval, and that you will be successful in framing such a report as will meet the views of the

Association, and prove a valuable addition to the stock of knowledge our Association is yearly publishing,

I am, with great respect,

Yours, very truly,

SAML. M. COLCORD.

Your Committee have thus given the Association all the information upon the state of the Drug Market which their time and opportunities would enable them to present. They do not by any means consider the report as exhaustive; but, such as it is, they submit it to the kind consideration of the Association whom they have attempted to serve.

In closing, your Committee regret that, through an accidental miscarriage of the notice of our Chairman to the member at Chicago, we are deprived of the ability to report upon the drug markets of the western section of our country. We are, however, encouraged to expect that Mr. Fuller will be present, and make a verbal statement.

WM. A. BREWER, *Chairman.*

SAML. M. COLCORD,

EVAN T. ELLIS,

JOHN I. THOMSEN,

Committee on Drug Market.

APPENDIX

To the Report of the Committee on the Drug Market, presented
at the Annual Meeting of the American Pharmaceutical
Association, New York, September, 1867.

Containing

*Tabular Statements of the Imports of Foreign Drugs, Medicines, Chemicals, &c.,
into the principal Ports of Entry in the United States.*

EXPLANATORY NOTE.—The Committee understand the sums set against the various articles in these tables to be the prime costs; and that the aggregate values of the imports at the various ports of entry represent only the prime costs in gold. Some of the articles come in free; and of those that are dutiable, the rates are in some cases *specific*, and in others *ad valorem*; so that it will be at once seen that it would be difficult to fix an average rate. This average rate—whatever it may be—should be taken into consideration, as well as a fair average profit to the importer, in order to fix the grand aggregate, either with respect to the consumption or exportation of articles embraced in the foreign drug trade.

NEW YORK IMPORTS.

Statement of Drugs, &c., for fiscal year ending June 30th, 1867.

ARTICLES.	QUANTITY.	VALUE.	RATE OF DUTY.
Acids used for manufacturing, N. O. P.....		\$ 297	Free.
Berries, &c., used for dyeing.....		79,720	"
Bismuth.....		23,684	"
Cochineal..... lbs.	621,610	500,781	"
Indigo "	763,092	514,747	"
Lac dye..... "	87,110	21,233	"
Madder, root..... "	6,382	559	"
" ground..... "	3,898,842	277,142	"
Orris root.....		3,119	"
Orchille weed.....		3,134	"
Ambergris.....		155	"
Cadmium.....		95	"
Munjeet.....		532	"
Arrow root..... lbs.	125,607	17,056	Dutiable.
Asphaltum "	321,385	5,768	30 p. c.
Acids, acetic and pyroligneous..... "	362	70	25 p. c.
			\$0.25

ARTICLES.	QUANTITY.	VALUE.	RATE OF DUTY.
Acids, acetic and pyroligneous.....	lbs. 174	\$ 65	\$ 0.80
“ benzoic	“	4,124	10 p. c.
“ boracic.....	“ 788,704	83,135	\$ 0.05
“ citric.....	“ 39,641	17,540	.10
“ gallic.....	“ 129	245	1.50
“ muriatic.....	“	28	10 p. c.
“ nitric.....	“	249	10 p. c.
“ oxalic.....	“ 177,477	36,467	\$ 0.04
“ sulphuric.....	“ 1,305	94	.01
“ tannic.....	“ 25	55	2.00
“ tartaric.....	“ 185,222	52,722	.20
Acetate of lead.....	“ 10	2	.20
“ copper.....	“ 186,236	41,603	.06
“ magnesia.....	“ 2	3	.50
“ soda.....	“ 1,966	156	.50
Aloes.....	“ 68,089	7,295	.06
Alum.....	“ 4,199,117	64,977	{ 60 c. p. 100 lbs
Ammonia.....	“ 955,453	68,978	20 p. c.
Aniline dyes or colors.....	“ 27,342	81,918	{ 35 p. c. & \$1 p. lb
Annatto seed or extract.....	“	38	20 p. c.
Antimony.....	lbs. 782,316	59,699	10 p. c.
Argols.....	“ 1,329,636	174,823	\$ 0.06
Arsenic.....	“ 325,873	11,566	20 p. c.
Assafoetida.....	“ 34,762	3,082	20 p. c.
Balsam Copaiba.....	“ 80,780	25,278	\$ 0.20
“ Peruvian.....	“ 1,164	1,547	.50
“ Tolu.....	“ 22,945	14,529	.30
Bark, Peruvian.....	“ 977,820	326,062	20 p. c.
Bitter apples, (Colocynth).....	“ 23,002	3,954	\$ 0.10
Borax, refined.....	“ 24,179	3,428	.10
Buchu leaves.....	“ 55,995	6,189	.10
Calomel.....	“	2,699	30 p. c.
Camphor, crude.....	lbs. 257,405	61,773	\$ 0.30
“ refined.....	“ 25,208	7,829	.40
Cantharides.....	“ 5,892	3,367	.50
Cocculus Indicus.....	“ 827	58	.10
Chloroform.....	“ 280	182	1.00
Chloride of lime.....	“ 16,845,657	520,132	{ 30 c. p. 100 lbs
Collodion.....	“ 4	2	\$ 1.00
Copperas.....	“ 1,998,146	11,064	.004
Cream of tartar.....	“ 1,455,052	244,863	.10
Tartar emetic.....	“ 6	3	.15
Cubebs.....	“ 87,112	10,734	.10
Cuttle-fish bone.....	“ 14,329	1,011	.05
Cutch and Terra japonica.....	“ 418,733	45,995	10 p. c.
Dragon's blood.....	“ 19,006	3,832	\$ 0.10
Ergot.....	“ 7,433	4,282	.20
Ethers, not specified.....	“ 1,029	739	1.00
Flowers, leaves and plants	“	64,573	20 p. c.

ARTICLES.	QUANTITY	VALUE.	RATE OF DUTY.
Indigo, extract of.....		\$ 15,549	10 p. c.
Iodine, crude..... lbs.	9,557	28,069	\$ 0.50
Iodine, re-sublimed.....	307	653	.75
Iodide, &c., of potass.....	20,867	50,777	.75
Ipecac.....	13,010	19,520	.50
Jalap.....	40,149	24,439	.50
Lac, seed and stick.....	34,044	4,659	.10
Licorice paste.....	3,430,095	416,107	.10
" root.....	3,030,586	90,016	.02
Logwood, extract of.....		165	10 p. c.
Madder, extract of.....		603,883	10 p. c.
Magnesia, calcined..... lbs.	18,587	5,619	\$ 0.12
" carbonate.....	113,225	11,788	.06
Manna.....	32,766	13,744	.25
Morphine and its salts..... oz.	923	2,200	2.50
Opium..... lbs.	90,917	322,258	2.50
Rhubarb.....	63,694	64,041	.50
Rose leaves.....	1,120	551	.50
Phosphorus.....		21,024	20 p. c.
Potash, bi-carbonate of..... lbs.	1,228	347	\$ 0.01½
" chlorate of.....	96,568	26,979	.06
" chromate and bi-chromate of.....	806,263	81,292	.03
" red prussiate of.....	21,165	8,398	.10
" yellow prussiate of.....	189,029	47,554	.05
" nitrate of, crude.....	2,630,172	83,087	.02½
" refined.....	56,249	3,200	.03
Safflower.....		15,824	10 p. c.
Santonine..... lbs.	2,929	12,666	\$ 5.00
Sarsaparilla.....	143,846	20,066	20 p. c.
Soda, bi-carbonate of.....	16,059,964	618,364	\$ 0.01½
" carbonate of.....	264,679	6,389	.00½
" caustic.....	8,022,247	336,826	.01½
" sulphate of,—“Glauber salts,”.....	64	4	.00½
" nitrate of.....	17,764,090	316,810	.01
" tartrate of potass. & (Rochelle salts).....	1,600	340	.15
" ash.....	51,690,867	1,183,978	.00½
" sal.....	14,193,910	207,670	.00½
Sulphate of baryta.....	16,047,284	142,421	.00½
" copper.....	1,176,323	62,554	25 p. c.
" magnesia.....	43,324	735	\$ 0.01
" quinine.....	42,857	69,219	45 p. c.
" zinc.....	22,100	1,241	20 p. c.
Sulphur, crude..... cwt.	283,025	355,392	\$6 p. ton.
" flowers of.....	2,023	5,153	{ \$20 p. t. { 15 p. c.
" refined.....	1,646	3,169	\$10 p. ton
Sumac..... lbs.	7,258,049	293,247	10 p. c.
Gambier.....		135,271	10 p. c.
Drugs and dyes, other.....		67,445	20 p. c.
Bark, other.....		844	10 p. c.
Patent medicines.....		43,327	50 p. c.
Leeches.....		744	20 p. c.

ARTICLES.	QUANTITY.	VALUE.	RATE OF DUTY.
Chemical preparations.....		\$ 73,086	20 p. c.
Medicinal ".....		46,403	40 p. c.
Cudbear.....		31,799	10 p. c.
Squills.....		1,797	10 p. c.
Indigo, from beyond C. of G. H.....		200,892	10 p. c.
Gelatine.....		23,702	35 p. c.
Picric acid.....		430	20 p. c.
Munjeet, C. of G. H.....		585	10 p. c.
Nitrate of strontia.....		97	20 p. c.
Potash, pure.....		2,416	15 p. c.
Gamboge.....		4,384	10 p. c.
Tonka beans.....		3,443	20 p. c.
Oil of civet.....		113	30 p. c.
Musk, crude.....		1,308	20 p. c.
Dried flowers.....		352	10 p. c.
Acetate of lime.....		22,337	25 p. c.
Glycerine.....		17,233	30 p. c.
Orchille.....		4,260	10 p. c.
Berries, C. of G. H.....		985	10 p. c.
Crocus powder.....		72	20 p. c.
Saccharate of gum.....		761	25 p. c.
Saffron.....		2,775	10 p. c.
Sesame oil.....		639	20 p. c.
Orchille liquor.....		305	10 p. c.
Cotton-seed oil.....		868	20 p. c.
Aniline, crude.....		3,764	20 p. c.
Lac dye, C. of G. H.....		2,247	10 p. c.
Nutgalls ".....		231	10 p. c.
Smaltz.....		3,031	20 p. c.
Polishing powders.....		1,937	25 p. c.
Albumen.....		17,098	25 p. c.
Acids for artists' use.....		1,072	10 p. c.
Iceland moss.....		625	10 p. c.
Manganese.....		2,887	10 p. c.
Salts of iodine.....		151	15 p. c.
Muriate of potash.....		7,017	20 p. c.
Cobalt.....		5,325	20 p. c.
Salts of tin.....		39	30 p. c.
Liquid storax.....		1,488	30 p. c.
Ginger root..... lbs.	833,587	56,113	\$ 0.05
Gum arabic, &c..... "	2,452,506	456,104	20 p. c.
" copal, kourie, damar, &c..... "	3,370,648	405,801	\$ 0.10
" mastic..... "	814	1,452	.50
" shellac..... "	533,106	72,401	.10
" benzoin..... "	4,247	1,678	.10
Honey..... gall.	167,032	98,786	.20
Oil, castor..... "	43,030	24,813	1.00
" croton..... lbs.	2,583	6,691	1.00
" hempseed..... gall.	1,400	1,255	.23
" mace..... lbs.	278	302	.50
" olive, in casks..... gall.	134,109	117,843	.25
" " bottles..... "	60,896	110,501	1.00
" palm and cocoanut..... "	70,616	33,290	10 p. c.
" almond..... lbs	896	6,175	\$ 1.50
" amber, crude..... "	662	171	.10

ARTICLES.	QUANTITY.	VALUE.	RATE OF DUTY,
Oil, amber, rectified	lbs. 462	187	\$ 0.20
" anise	" 3,894	6,541	.50
" bergamot	" 29,825	109,646	1.00
" cajeput	" 1,128	806	.25
" caraway	" 3,241	4,038	.50
" cassia	" 20,116	26,839	1.00
" cinnamon	" 46	203	2.00
" citronella	" 11,039	13,834	.50
" cloves	" 867	1,037	2.00
" cognac	" 295	435	4.00
" cubebs	lbs. 350	703	1.00
" fennel	" 186	152	.50
" fruit ethers	" 112	145	2.50
" fusel oil	galls. 103	856	2.00
" juniper	lbs. 5,608	3,342	.25
" orange and lemon	" 28,919	58,996	.50
" (otto) of roses	oz. 8,185	39,888	1 50
" rum	" 8,324	448	2.00
" red thyme	lbs. 14,724	9,543	.25
" white thyme	" 1,458	1,138	.30
" valerian	" 104	746	1.50
" essential, all other	"	49,252	50 p. c.
Sugar of lead	lbs. 248,809	23,383	\$ 0.20
Quicksilver	"	28,243	15 p. c.
Sede, anise	lbs. 137,947	11,077	\$ 0.05
" " star	" 17,274	2,786	.10
" canary	bus. 11,770	22,977	1.00
" caraway	lbs. 175,022	13,431	.03
" cardamom	" 15,760	19,414	.50
" castor	bus. 60,588	67,687	.60
" coriander	lbs. 48,851	2,055	.03
" cumin	" 20,874	584	.05
" fennel	" 21,837	1,325	.02
" fenugreek	" 107,655	3,342	.02
" hemp	" 61,077	2,468	.004
" mustard	" 1,083,753	55,729	.03
" rape	" 89,369	4,059	.01
Spices—			
Cassia	" 888,377	113,551	.20
" buds	" 11,606	3,440	.25
Cinnamon	" 18,598	8,139	.30
Cloves	" 201,123	20,738	.20
Mace	" 41,983	13,654	.40
Nutmegs	" 504,710	135,522	.50
Pepper, black	" 4,601,704	232,564	.15
" Cayenne	" 118	107	.15
Pimento	" 1,222,660	30,506	.15
Vanilla beans	" 4,861	20,623	3.00
Bay rum	gall. 7,489	4,540	1.50
Pearl barley	lbs. 8,760	657	1.00
		\$12,419,417	

N. B.—This statistical table was prepared, with much labor, by Mr. John Roberts, Clerk Statistical Bureau, Custom House, New York, and in an accompanying note to the Chairman of the Committee on the Drug Market, he says:

"The enclosed is a full and complete statement of all drugs, both crude and manufactured, ginger root, gums, honey, arrow-root, asphaltum, oils, sugar of lead, quicksilver, seeds, spices and chemicals, imported into the district of New York during the fiscal year ending June 30th, 1867. The quantities of the *ad valorem* articles are in some instances estimated, but it is believed that they are nearly, if not quite correct; the price, when given, has been the basis for estimating.

"Those articles from and including *gambier* to *ginger root*, that appear in this statement, are what are termed *non-enumerated articles*, and the quantity of these is not given. In this list appear the articles of 'drugs and dyes, other,' chemical preparations, medicinal preparations, and patent medicines. It is proper to say that under these heads are classed many articles of drugs that are manufactured, and such as would form an answer in part to your second question. The manufactured drugs, when paying a rate of duty the same as those headings just cited, are placed under them, and no notice is taken of them further, as the Department at Washington considers it not essential for statistical information.

"The answer to your third question I think you will find is full and satisfactory. It is not in my power to arrange these articles in such form as you may have desired, and for the reason that I have no knowledge of the different classes of drugs, chemicals, &c. I have taken a great deal of pains to make this elaborate statement strictly correct, and as such you may rely upon its accuracy. It has been compiled from all the records of this Custom House that have a bearing upon the subject matter, and reflects the same information as has been in part forwarded to Washington, to be incorporated in the official report."

PHILADELPHIA IMPORTS

Of foreign Drugs, Chemicals, &c., for the year 1866.

ARTICLES.	QUANTITY.	VALUE.
Acetate of iron.....	lbs. 349	\$ 295
" lime	" 79,296	1,837
" lead.....	" 5,747	451
Acid, acetic.....	" 26	8
" benzoic.....	" 1,128	3,953
" butyric.....	" 60	116
" carbolic	" 1,036	252
" citric.....	" 43,746	21,566
" gallic.....	" 50	82
" pyro-gallic.....	" 339	2,303
" muriatic.....	"	505
" nitric.....	"	534
" oxalic.....	lbs. 29,161	16,734
" tartaric.....	" 5,600	1,878
" phosphoric.....	" 70	75
Aconite	" 5	5
Aconitine	oz. 5	70
Aloes, Cape.....	lbs. 14,800	1,418
Alum.....	" 81,210	1,192
Ammonia, carb.....	" 153,258	12,044
" muriate	" 48,185	4,553

ARTICLES.	QUANTITY.	VALUE.
Ammonia, sulphate.....	lbs. 535,306	\$ 14,869
Amyl, butyrate oxide of.....	" 8	19
" acetate ".....	" 8	8
Amylic ether.....	" 60	54
Antimony, crude.....	" 88,085	3,511
" oxide.....	"	323
Antimonialis pulv.....	lbs. 672	150
Argols	" 54,253	10,956
Annatto	" 8,952	363
Arrow root.....	" 2,249	339
Arsenic	" 28,612	1,042
Assafoetida	" 13,094	1,198
Balsam copaiba.....	" 3,333	1,626
" Peruvian.....	" 85	118
" tolu.....	" 830	574
Bark, Peruvian	" 389,971	173,309
" extract of.....	" 551	467
Baryta, carb., crude.....	" 4,480	31
" " pure.....	" 120	37
" muriate.....	" 250	14
" nitrate.....	"	13
" chloride.....	" 10	4
" sulphate.....	" 1,663,450	6,330
Belladonna	" 10	10
Beeberine, sulph.....	oz. 40	34
Bleaching powder.....	lbs. 2,870,388	83,975
Bismuth, valerianate.....	" 2	10
Bromine.....	" 137	567
Cardamom seed.....	" 473	673
Calomel.....	" 600	392
Cannabis indica, ext.....	oz. 87	31
Colchicum, ext.....	lbs. 50	28
Columbo root.....	" 540	186
Cinnabar, cind.....	" 100	73
Cochineal.....	" 6,813	9,149
Creasote.....	" 288	113
Colocynth.....	" 498	84
Cream tartar.....	" 28,613	5,598
Chloride of uranium.....	" 90	523
" calcium.....	" 611	148
Cubebs.....	" 26,424	4,501
Digitaline.....	oz. 5	46
Extract elaterium.....	" 246	489
" hyoscyamus.....	lbs. 20	39
Ergotine	" 10	39
Gelatine.....	doz. 1,634	1,718
Ginger root.....	lbs. 45,174	4,438
Glycerine.....	" 150	83
Glue.....	" 954	96
Gum arabic.....	"	283
" kino.....	lbs. 336	229
" shellac.....	" 10,428	1,255
Iodine, crude.....	" 675	1,812
Iodine, resublimed.....	" 3,021	7,769

ARTICLES.	QUANTITY.	VALUE.
Iodide potassium.....	lbs. 43,042	33,483
Ipecac.....	" 852	2,086
Iron by hydrogen.....	" 652	553
" sulphate.....	" 95,847	594
" lactate.....	" 165	75
Lactucarium.....	" 33	100
Lithia, carb., pure.....	" 10	116
Lac sulphur.....	" 13,249	1,454
Licorice paste.....	" 60,222	8,799
Leaves, medicinal.....		609
Magnesia, calc.....	lbs. 1,269	340
" carb.....	" 4,370	470
Manna.....	" 1,193	463
Morphine.....	oz. 15	48
Musk.....	" 21	140
Narcein.....	" 2	65
Nitrate uranium.....	lbs. 63	321
" lead.....	" 40,838	2,598
Nux vomica.....	" 7,853	277
Oxalate cerium.....	" 360	855
Oils, essential.....		190
Oil, amber.....	lbs. 83	35
" anise.....	" 65	150
" almond.....	" 115	865
" bergamot.....	" 44	115
" caraway.....	" 81	189
" cassia.....	" 633	1,094
" citronella.....	" 788	1,358
" croton.....	" 575	2,824
" cubeb.....	" 101	432
" ergot.....	" 10	8
" fennel.....	" 10	10
" juniper.....	" 470	236
" nutmeg.....	oz. 112	16
" orange and lemon.....	lbs. 3,709	7,592
" (otto) roses.....	" 399	2,710
" thyme.....	" 30	11
" vetiver.....	oz. 16	80
" expr. castor.....	gall. 198	183
" " almond.....	lbs. 2,197	714
" " olive.....	gall. 1,068	1,085
" " neatsfoot.....		67
" Haarlem.....		97
Opium.....	lbs. 36,058	113,047
Pimento.....	" 266,619	8,218
Potassium, metal.....	" 12.9	197
" bromide.....	" 2,199	5,652
Potassa, chlorate.....	" 38,746	12,886
" chromate.....	" 1,127	130
" prussiate.....	" 2,201	541
Potas. hydriodate.....	" 1,496	3,187
Pyroxylic spirit (naphtha).....	" 500	150
Quinine.....		20
Rhatany root.....	lbs. 4,095	477

ARTICLES.	QUANTITY.	VALUE.
Rhubarb	lbs. 1,348	\$ 2,473
Sal acetosella	12,200	3,259
Santonine	" 50	365
Sarsaparilla	" 2,053	202
Sago	" 532	23
Soda, caustic.....	" 1,888,999	78,176
" bi-carb.....	" 2,512,629	92,398
" carb.....	" 59,106	935
" nitrate	" 3,216,689	47,162
" sql.....	" 976,826	15,936
" sulphate.....	" 36,770	576
" acetate.....	" 1,115	77
" bi-sulphate.....	" 1,456	542
" phosphate.....	" 894	85
Strontia, carb.....	" 6,671	165
" nitrate.....	"	93
Sulphate copper	lbs. 196,104	10,685
Taraxacum, ext.....	" 30	13
Tartar emetic.....	" 300	96
Turmeric.....	" 9,514	435
Valerian	" 20	17
Valerianate zinc.....	" 20	84
Seed, mustard.....	" 100	4
Quicksilver		1,860
Total value, in gold.....		\$884,088

N. B.—We have omitted some articles not so immediately pertaining to a pharmaceutical list, but more to a list of general drugs. These would sum up a large amount, besides what appears from the table.

BALTIMORE IMPORTS

Of foreign Drugs and Chemicals, for the year ending Dec. 31st, 1866.

ARTICLES.	QUANTITY.	VALUE.
Acids, for chemical and manufacturing purposes..		\$ 53
Arrow-root.....		64
Chalk, red and other.....		68
Benzoic acid.....		154
Citric "	lbs. 1,343	607
Oxalic "	" 632	140
Aloes	" 1,785	160
Alum		1,185
Ammonia	lbs. 6,557	728
Assafetida	" 1,140	85
Bitter apples, (colocynth).....	" 128	140
Buchu leaves	" 391	91
Calomel.....		94
Cantharides.....	lbs. 4	12
Chloride of lime.....	" 136,233	4,149
Ergot.....	" 110	41

ARTICLES.	QUANTITY.	VALUE.
Medicinal articles not specified.....		282
Extract indigo.....		1,255
Iodine..... lbs.	20	76
Ipecac..... "	5	19
Licorice paste..... "	210,869	30,438
Extract opium.....		16
Chlorate potash..... lbs.	336	98
Prussiate "..... "	50	166
Rhubarb.....		21
Soda, bi-carb.. .. lbs.	323,550	12,386
" carb..... "	71,680	2,534
" caustic..... "	1,087,876	25,623
" sulphate..... "	23,349	353
" nitrate..... "	23,865	616
" ash..... "	1,976,708	44,290
" sal..... "	312,051	4,518
Sulphate copper "	7,318	454
" zinc..... "	25	7
Sulphur, crude..... cwt.	4,926	6,599
" refined..... "	100	189
Sumac lbs.	64,130	2,724
Cork, manufactures of.....		215
Emery lbs.	1,859	93
Perfumery and cologne.....		2,736
Ginger root..... lbs.	269	8
Gum arabic..... "	461	185
Honey..... gall	11,326	6,330
Ink.....		139
Indigo lbs.	913	516
Ivory nuts.....		206
Ivory.....		25
Madder root..... lbs.	13,441	1,013
Oil, palm..... gall	18	11
" almond..... lbs.	118	221
" olive..... gall	600	956
" croton..... lbs.	105	554
" bergamot..... "	732	1,600
" caraway..... "	15	37
" cloves..... "	100	69
" cubebs..... "	53	86
" citronella..... "	149	213
" orange and lemon..... "	2,617	3,828
" rose..... oz.	60	374
Seed, cardamom..... lbs.	257	357
" rape..... "	1,825	54
" canary..... bush.	187	400
" caraway..... lbs.	564	47
" fennel..... "	551	22
" mustard..... "	2,997	165
Soap, perfumed..... "	9,819	2,313
Spices and mustard..... "	1,148	269
Nutmegs..... "	3,581	998
Bay rum..... gall	18	19
Sponges.....		62
Vinegar gall	25,319	3,048
Total imports, at gold valuation.....		\$167,604

EXPORTS

Of Drugs, Medicines, Dyes, &c., from the Port of Baltimore, for the year ending December 31, 1866.

ARTICLES.	QUANTITY.	VALUE.
Drugs and medicines.....		\$ 1,123
Dyes, prepared; ext. logwood, &c.....		12,949
Hops..... lbs.	1,486	874
Linseed oil..... galls.	365	603
Castor oil..... "	10	11
Essential oils..... lbs.	100	73
Rosin and turpentine..... bbls.	10,887	55,958
Soap, perfumed.....		40
Spirits turpentine..... galls.	1,019	3,477
Vinegar..... "	6,437	1,987
Wax..... lbs.	6,784	2,736
Epsom salt..... "	6,550	392
Cassia..... "	5,311	911
Cloves..... "	1,324	84
Pepper..... "	40,308	1,994
Total exports.....		\$ 83,212

BOSTON IMPORTS

Of Chemicals, Dyes, Drugs, and Medicines for the Quarter ending Sept. 30, 1866.

ARTICLES.	QUANTITY.	VALUE.
Berries, nuts, &c., used in dyeing and tanning.....		\$8,404
Cochineal..... lbs.	72,839	
Dyewood, in sticks..... cwt.	69,263	
Gypsum or plaster of Paris, unground..... "	151,160	
Indigo..... lbs.	69,667	
Lac dye..... "	108,641	
Madder, ground..... "	344,960	
Wood or Pastel.....		450
Whale, sperm and other fish oils..... galls.	89,186	
Guano..... tons.	425	
Red chalk..... lbs.	7,000	
Citric acid..... "	560	
Oxalic acid..... "	36,831	
Tartaric acid..... "	8,987	
Blacking.....		1,200
Argols or crude tartar..... lbs.	93,774	
Balsam tolu..... "	129	
Aloes..... "	11,742	
Alum, aluminous cake, &c..... "	364,653	
Ammonia, sal ammon., and carbonate of..... "	66,965	
Aniline dyes, &c..... "	411	
Annatto seed or extract..... "	65	

ARTICLES.	QUANTITY.	VALUE.
Arsenic.....	lbs. 28,743	\$.
Buchu leaves.....	" 3,735	
Calomel.....		58
Chloride of lime or bleaching powder.....	lbs. 676,962	
Copperas, green vitriol, or sulph. of iron.....	" 200,086	
Cutch, or catechu and terra japonica.....	" 321,436	
Hydriodate and acetate of potash.....	" 820	
Jalap.....	" 772	
Licorice paste.....	" 72,805	
Licorice root.....	" 3,149	
Madder, extract and garancine.....		27,422
Magnesia calcined.....	lbs. 1,792	
Chlorate of potash.....	" 2,240	
Chromate and bichromate of potash.....	" 11,239	
Prussiate of potash, red.....	" 17,920	
Prussiate of potash, yellow.....	" 6,720	
Saltpetre, crude.....	" 1,868,329	
Safflower.....		1,310
Rhubarb.....	lbs. 4,079	
Bicarb. soda.....	" 995,259	
Caustic soda.....	" 164,080	
Nitrate of soda.....	" 2,065,798	
Soda ash.....	" 3,193,132	
Soda, sal.....	" 551,900	
Sulphate of baryta.....	" 290,601	
Sulphate of copper, blue vitriol.....	" 30,281	
Brimstone, crude.....	cwt. 4,785	
Sulphur, flowers of.....	" 108	
Sulphur, in rolls, refined.....	" 117	
Sumac.....	lbs. 537,000	
Emery ore, or rock.....	tons. 121	
Emery, pulverized.....	lbs. 7,780	
Cosmetics.....		13,859
Gum arabic, senegal, gedda, myrrh, &c.....	lbs. 166,835	
Gum copal, kowrie, sandarac, &c.....	" 86,590	
Shellac.....	" 93,501	
Gum benzoin.....	" 1,506	
Ink and ink powders.....		734
Gypsum, or plaster of Paris, ground or calcined...		2,160
Mineral water.....	qts. 125	
Oil, almond.....	lbs. 360	
" castor.....	galls. 16,268	
" croton.....	lbs. 122	
" linseed.....	galls. 227,878	
" olive, in casks.....	" 27,988	
" olive, in bottles.....	" 1,881	
" palm and cocoanut.....	" 181,655	
" seal.....	" 146,839	
" volatile, &c.....	lbs. 50	
" bergamot.....	" 308	
" citronella.....	" 292	
" juniper.....	" 252	
" orange and lemon.....	" 304	
" thyme, white.....	" 124	
" all other essential.....		1,966
Soap, toilet.....	lbs. 2,046	

ARTICLES.	QUANTITY.	VALUE.
Starch, potato.....	lbs. 32,782	\$
Tapioca.....	" 178,331	
Cream tartar.....	" 33,866	
Sarsaparilla.....	" 35,047	
Sugar of lead.....	" 6,418	

For the Quarter ending December 31, 1866.

ARTICLES.	QUANTITY.	VALUE.
Berries, nuts, &c., used in dyeing and tanning.....		\$27,221
Dyewood.....	cwt. 50,778	
Indigo.....	" 45,031	
Lac dye.....	" 38,489	
Cochineal.....	" 81,952	
Madder, ground.....	" 107,160	
Sperm, whale and other fish oils.....	galls. 11, 73	
Red chalk.....	lbs. 8,630	
Gypsum, or plaster of Paris.....	cwt. 120,700	
Arrow-root.....	lbs. 140	
Oxalic acid.....	" 33,322	
Alum.....	" 130,146	
Camphor, crude.....	" 42,000	
Chloride of lime, &c.....	" 722,229	
White chalk.....	" 2,000	
Benzoic acid.....		119
Tartaric acid.....	lbs. 2,822	
Aloes.....	" 9,417	
Hoffman's anodyne.....	" 114	
Copperas.....	" 283,876	
Cubeb.....	" 7,825	
Cutch, &c.....	" 755,697	
Dragon's blood.....	" 400	
Ammonia, sal and carbonate.....	" 44,962	
Aniline dyes.....	" 265	
Annatto seed, or extract.....	" 1,251	
Antimony.....	" 100	
Hydriodate and acetate of potash.....	" 544	
Magnesia, calcined.....	" 1,000	
Magnesia, carb.....	" 8,790	
Opium.....	" 3,399	
Argols.....	" 112,607	
Arsenic.....	" 4,735	
Cream tartar.....	" 10,510	
Garancine.....		7,233
Saltpetre.....	lbs. 614,885	
Bi-carb. soda.....	" 720,206	
Caustic soda.....	" 271,978	
Ash, soda.....	" 6,300,626	
Manna.....	" 440	
Sulphate of copper, blue vitriol.....	" 173,133	
Brimstone, crude.....	cwt. 5,624	
Sumac.....	lbs. 780,880	
Gum, copal.....	" 87,098	

ARTICLES.	QUANTITY.	VALUE.
Chlorate of potash.....	lbs. 3,360	\$
Prussiate of potash.....	" 2,399	
Safflower.....		2,041
Shellac.....	lbs. 21,624	
Olive oil, in casks.....	galls. 4,689	
Olive oil, in bottles.....	" 1,908	
Palm and cocoanut oil.....	" 238,904	
Whale oil.....	" 37,175	
Oil of bergamot.....	lbs. 1,038	
Nitrate of lead.....	" 11,653	
Whiting, &c.....	" 1,038,504	
Putty.....	" 24,386	
Umber.....	" 18,061	
Soda, sal.....	" 116,042	
Sulphate of baryta.....	" 314,493	
Emery, ore or rock.....	tons. 85	
Emery, pulverized.....	lbs. 60,681	
Cologne water.....	galls. 354	
Perfumery.....		13,046
Gum arabic, &c.....	lbs. 76,531	
Gypsum, calcined.....		599
Ink and ink powder.....		2,577
Maccaroni.....		272
Mineral water.....		329
Croton oil.....	lbs. 39	
Linseed oil.....	galls. 87,042	
Almond oil.....	lbs. 132	
Citronella oil.....	" 377	
Otto of rose.....	oz. 400	
All other essential oils.....		389
Enamel white of baryta.....	lbs. 525	
Ox. of zinc.....	" 22,000	
Plumbago.....	tons. 28	
Castile soap.....	lbs. 3,890	
Toilet soap.....	" 16,253	
Starch of potatoes, or corn.....	" 243,331	
Vegetables, prepared.....		207
Vinegar.....	galls. 235	

For the Quarter ending March 31, 1867.

ARTICLES.	QUANTITY.	VALUE.
Berries, nuts, &c., used in dyeing and tanning.....		\$ 18,280
Dyewood.....	cwt. 37,988	
Lac dye.....	lbs. 55,800	
Indigo.....	" 4,650	
Madder root.....	" 217,806	
Sperm, whale and other fish oils.....	galls. 40,409	
Alum, &c.....	lbs. 47,200	
Ammonia.....	" 102,090	
Argols.....	" 105,478	
Red chalk.....	" 11,237	

ARTICLES.	QUANTITY.	VALUE.
White chalk.....	lbs. 4,000	\$
Oxalic acid.....	" 3,117	
Bitter apples, colocynth.....	" 2,275	
Camphor, crude.....	" 70,000	
Chloride of lime, bleaching powder.....	" 680,165	
Tartaric acid.....	" 1,120	
Aloes.....	" 3,475	
Aniline dyes.....	" 1,065	
Cubebs.....	" 35,286	
Cutch, catechu, and terra japonica.....	" 657,170	
Manna.....	" 675	
Antimony, crude.....	" 1,125	
Arsenic.....	" 57,860	
Copperas.....	" 42,337	
Saltpetre, crude.....	" 428,608	
Soda, bicarb.....	" 633,665	
Soda, caustic.....	" 316,073	
Dragon's blood.....	" 404	
Iodate, &c., of potash.....	" 1,678	
Madder, extract.....		9,211
Soda ash.....	lbs. 6,407,387	
Soda, sal.....	" 69,501	
Sulphate of baryta.....	" 168,062	
Sulphate of copper.....	" 11,779	
Opium.....	" 3,104	
Bi-carb. of potash.....	" 40,174	
Chrom. and bi-chrom. of potash.....	" 11,381	
Brimstone, crude.....	cwt. 20,204	
Sumac.....	lbs. 1,153,572	
Gum arabic, &c.....	" 120,465	
Safflower.....		2,902
Sarsaparilla.....	lbs. 48,407	
Perfumeries and cosmetics.....		12,863
Gum copal, &c.....	lbs. 160,212	
Shellac.....	" 7,048	
Castor oil.....	galls. 6,494	
Gypsum.....		622
Linseed oil.....	galls. 33,242	
Olive oil.....	" 150	
Citronella oil.....	lbs. 502	
Palm and cocoanut oil.....	galls. 41,892	
Oil of bergamot.....	lbs. 559	
Oil of orange and lemon.....	" 1,618	
Petroleum, crude.....	galls. 377	
Whale oil.....	" 27,240	
Oatmeal.....	cwt. 56	
Otto of rose.....	oz. 829	
All other essential oils.....		1,074
Sugar of lead.....	lbs. 18,482	
Soap, toilet and shaving.....	" 12,075	
Tapioca.....	" 19,176	
Cardamom.....	" 479	
Whiting and Paris white.....	" 455,663	
Umber.....	" 2,380	
Ultramarine.....		1,520
Plumbago and black lead.....	tons. 54	

For the Quarter ending June 30, 1867.

ARTICLES.	QUANTITY.	VALUE.
Berries, nuts, &c., used in dyeing and tanning.....		\$8,549
Cochineal.....	lbs. 57,998	
Dyewood, in sticks.....	cwt. 33,520	
Indigo.....	lbs. 169,724	
Lac dye.....	" 91,283	
Madder, ground.....	" 2,658,418	
Madder root.....	" 4,021	
Woad.....		368
Sperm, whale, and other fish oils.....	galls. 27,279	
Gypsum, or plaster of Paris.....	cwt. 119,460	
Oxalic acid.....	lbs. 49,279	
Alum.....	" 47,500	
Ammonia.....	" 72,079	
Argols.....	" 149,253	
White chalk.....	cwt. 4,000	
Tartarie acid.....	lbs. 132	
Aloes.....	" 6,317	
Aniline dyes.....	" 360	
Camphor.....	" 62,110	
Chloride of lime.....	" 757,006	
Cream tartar.....	" 78,381	
Cutch.....	" 100,351	
Annatto seed, or extract.....	" 226	
Antimony.....	" 3,360	
Arsenic.....	" 16,527	
Calomel.....		17
Garancine.....		76,838
Chlor. of potash.....	lbs. 9,377	
Saltpetre, crude.....	" 480,275	
Safflower.....		2,357
Sarsaparilla.....	lbs. 30,744	
Iodate of potash.....	" 200	
Opium.....	" 5,374	
Rhubarb.....	" 418	
Nitrate of soda.....	" 911,114	
Bicarbonate of soda.....	" 788,556	
Caustic soda.....	" 212,372	
Soda ash.....	" 3,851,380	
Sulphate of copper.....	" 33,539	
Bicarbonate of potash.....	" 29,313	
Soda, sal.....	" 73,357	
Sulphate of baryta.....	" 364	
Sulphur, crude.....	cwt. 30,043	
Sumac.....	lbs. 1,602,678	
Gum arabic.....	" 131,429	
Gum copal.....	" 149,802	
Shellac.....	" 102,314	
Almond oil.....	" 325	
Castor oil.....	galls. 11,117	
Linseed oil.....	" 128,011	
Illuminating oil.....	" 12	
Olive oil, in bottles.....	" 3,105	
Olive oil, in casks.....	" 2,137	
Palm and cocoanut oil.....	" 172,161	

ARTICLES.	QUANTITY.	VALUE.
Whale oil.....	galls. 14,798	\$
Seal oil.....	" 511	
Amber oil.....	lbs. 400	
All other essential oils.....		508
Ink.....		544
Whiting and Paris white.....	lbs. 440,763	
Emery ore or rock.....	tons. 82	
Emery, pulverized.....	lbs. 1,814	
Gypsum, ground.....		2,788
Sugar of lead.....	lbs. 1,806	
Plumbago.....	tons. 67	
Vinegar.....	galls. 251	
Castile soap, for the year ending June 30, 1867.....	lbs. 228,841	

Drugs rejected at the Port of Boston, for the year ending June 30, 1867.

1,200 lb. scammony, containing only 7 per cent. of pure virgin scammony.

3,600 lb. cubeb stalks, containing no oil of cubebs, but retaining some of the odor and color of the cubeb berry, evidently intended for grinding to adulterate cubebs.

400 lb. opium, containing only 4 per cent. of morphia, very dark in color, mostly hard and brittle on fracture, adulterated with gum and some kind of flower.

400 lb. sarsaparilla root, damp and mouldy.

300 lb. gold thread, badly cured and not properly cleansed.

These goods were all returned to the countries from whence they came, with the exception of the cubeb stalks, which were burned in East Boston, under the United States law.

VALUE AND RATE OF DUTIES

Of Chemicals, Dyes, Drugs, and Medicines imported into the Port of Boston for the year ending June 30, 1867.

ARTICLES.	VALUE.	DUTY.
Berries, nuts, &c., used in dyeing and tanning.	\$ 62,454	10 per cent.
Cochineal.....	183,497	Free.
Dye woods.....	105,230	"
Gypsum, crude.....	12,441	"
Indigo.....	274,498	"
Lac dye.....	53,231	"
Madder.....	260,717	"
Woad or Pastel.....	838	"
Whale, sperm, and other fish oils.....	436,005	20 per cent.
Guano.....	5,000	Free.
Red chalk.....	690	20 per cent.
Citric acid.....	247	10 c. per lb.
Oxalic acid.....	25,929	4 c. per lb.
Tartaric acid.....	4,249	20 c. per lb.

ARTICLES.	VALUE.	DUTY.
Blacking	1,200	30 per cent.
Argols, or crude tartar.....	76,569	6 c. per lb.
Balsam tolu.....	84	30 c. "
Aloes.....	2,338	6 c. "
Alum, aluminous cake, &c.....	9,071	60 c. per 100 lb.
Ammonia, sal ammon., carbonate ammon.....	21,241	20 per cent.
Aniline dyes, &c.....	5,246	\$1 p. lb. & 35 p.c.
Annatto seed, or extract.....	396	20 per cent.
Arsenic.....	2,182	20 "
Buchu leaves.....	722	20 "
Calomel	75	30 "
Chloride of lime, bleaching powder.....	92,176	30 c. per 100 lb.
Copperas, or sulphate of iron.....	2,970	$\frac{1}{2}$ c. per lb.
Cutch, catechu, or terra japonica.....	66,518	10 per cent,
Iodate, and hydriodate of potash.....	8,950	75 c. per lb.
Jalap.....	238	50 "
Licorice paste.....	5,775	10 "
Licorice root.....	183	2 "
Madder, extract and garancine.....	120,704	Free.
Magnesia, calcined.....	649	12 c. per lb.
Chlorate of potash.....	1,484	6 "
Chromate and bichromate of potash	4,603	3 "
Prussiate of potash, red.....	7,294	10 "
Prussiate of potash, yellow.....	2,718	3 "
Saltpetre, crude.....	123,351	$2\frac{1}{2}$ "
Safflower.....	8,610	10 per cent.
Rhubarb.....	7,543	50 c. per lb.
Bicarbonate of soda.....	117,219	$1\frac{1}{2}$ "
Caustic soda.....	38,998	$1\frac{1}{2}$ "
Nitrate of soda.....	45,442	$\frac{1}{2}$ "
Soda ash	410,139	$\frac{1}{2}$ "
Soda, sal	11,180	$\frac{1}{2}$ "
Sulphate of baryta.....	6,937	$\frac{1}{2}$ "
Sulphate of copper.....	14,327	25 per cent.
Brimstone, crude.....	97,169	\$6 per ton.
Sulphur flowers.....	266	\$10 "
Sulphur, in rolls, refined.....	238	\$10 "
Sumac	164,803	10 per cent.
Emery ore or rock.....	9,166	\$6 per ton.
Emery, pulverized.....	3,031	1 c. per lb.
Cosmetics	13,859	50 per cent.
Gum arabic, senegal, gedda, myrrh, &c.....	101,538	20 "
Oil amber.....	190	50 "
Gum copal, kowrie, sandarac, &c.....	75,688	10 c. per lb.
Shellac	35,169	10 "
Gum benzoin.....	347	10 "
Ink and ink powders.....	3,855	35 per cent.
Gypsum, or plaster of Paris, ground or calcined	6,169	20 "
Mineral water.....	439	25 p. c. & hots 3 c.
Oil, almond.....	1,693	{ essen. \$1.50 p. lb. { fixed 10 c. p. lb.
" castor.....	19,965	\$1 per gallon.
" croton.....	842	\$1 per lb.
" linseed.....	311,088	23 c. per gallon.

ARTICLES.	VALUE.	DUTY.
Oil, olive, in casks.....	31,585	25 c. per gallon.
“ olive, in bottles	10,857	\$1 “ “
“ palm and cocoanut.....	260 968	10 per cent.
“ seal	89,426	10 “
“ bergamot.....	8,176	\$1 per lb.
“ citronella.....	1,666	50 c. “
“ juniper.....	217	50 per cent.
“ orange and lemon.....	4,521	50 c. per lb.
“ thyme, white.....	126	50 per cent.
“ all other essential.....	4,354	50 “
Soap, toilet	8,487	10 c. p. lb. & 25 p. c.
Starch, potato and corn.....	8,747	1 c. p. lb. & 20 p. c.
Tapioca	8,294	20 per cent.
Cream tartar.....	21,647	10 c. per lb.
Sarsaparilla.....	26 208	20 per cent.
Sugar of lead.....	2,187	20 c. per lb.
Arrow-root (excepting Taylor's).....	9	30 per cent.
Camphor, crude.....	33,346	30 c. p. lb. ref'd 40c.
White chalk	352	\$10 per ton.
Benzoic acid	119	10 per cent.
Hoffman's anodyne	354	50 c. per lb.
Cubels	5,253	10 “
Dragon's blood.....	294	10 “
Antimony	793	10 per cent.
Magnesia carbonate.....	809	6 c. per lb.
Opium.....	42,831	\$2 50 per lb.
Manna.....	641	25 c. “
Nitrate of lead.....	852	3 c. “
Whiting, &c.....	9,036	1 c. “
Putty	483	1½ c. “
Umber.....	249	½ c. “
Cologne water.....	2,171	\$3 p. gall. & 50 p. c.
Perfumery	25,909	50 per cent.
Macaroni.....	272	35 “
Otto of rose.....	7,730	\$1.50 per oz.
Enamel white of baryta.....	138	½ c. per lb.
Oxide of zinc.....	1,239	1½ c. “
Plumbago.....	5,651	\$10 per ton.
Castile soap	16,019	1 c. p. lb. & 30 p. c.
Vegetables, prepared.....	207	35 per cent.
Vinegar	220	10 c. per gallon.
Colocynth	375	10 c. per lb.
Bicarbonate of potash.....	4,763	1½ “
Petroleum, crude.....	27	20 c. per gallon.
Oat meal	385	10 c. per lb.
Cardamom seeds.....	632	50 “
Ultramarine	1,520	25 per cent.
Oli, illuminating.....	23	40 “
Total.....	\$4,137,843	

These values are made up at the cost in gold at the ports of shipment, reckoned into United States currency; duties and expenses not being added.

REPORT ON THE INTERNAL REVENUE LAW.

At the last annual meeting a Committee was directed to be appointed to take into consideration the whole subject of the Internal Revenue Law, as it relates to the interests of the drug trade and of Pharmacy.

By the terms of the resolution our President, Stearns, was made Chairman, and he was by vote instructed to appoint his colleagues. Wm. A. Brewer, of New York, and myself having been named by him, gave only such attention to the subject as would be required in aid of the Chairman, until, during the past summer, I was requested to assume those duties myself, as explained in the retiring President's address. No new phases of the subject presenting themselves, I should have been content to throw the whole matter before the Association for such further discussion as might arise at the present meeting; but during the past few weeks I happened to have been engaged as a juror in the U. S. District Court for the Eastern District of Pennsylvania, the chief business of which Court is to adjust the claims arising under the Revenue laws. Being thus brought into contact with the officers of the law, and having opportunities to form some idea of the difficulties which surround the enforcement of its penalties, I have, within a few days past, compiled some facts and suggestions, which I offer to the Association in lieu of a full report, having requested of my colleague, who resides in this great commercial centre, to prepare a separate report, or to present any additional matter which may throw light on the subject in any of its branches.

In the course of testimony before the Court the following details of the manufacture and distillation of whiskey were collected: The proper quantity of Indian corn for the size of the tubs and still, being first crushed, is introduced, with scalding water, into a shallow mash-tub, and the temperature is afterwards raised to the boiling point; after about an hour a stirring machine is set in motion, by which the *mash*, as the mixed liquid and grain is called, is cooled down, a suitable proportion of rye and malt being at the same time added. The mash requires

from 3 to 7 hours, according* to the weather and other circumstances, to cool, and is then run into a fermenting vat, and is called *beer*, being generally further diluted, and allowed to remain from 3 to 4 days, according to the weather. After the process has proceeded thus far, it is necessary to distill without delay, or the beer will become sour, and the proportion of alcohol diminished by the acetous fermentation. From the fermenting vat beer is drawn into a receiving vat, from which it is pumped into the still, which is now said to be "charged," and on the application of the heat, generally by steam-pipes, the whiskey is distilled.

In the course of the testimony two witnesses stated the proportions and yield of the process. A quantity of 20 bushels of grain for making a mash generally consists of 14 bushels of Indian corn, 4 bushels of rye, and 2 bushels of malt, though a much larger proportion of rye is preferred where a fine quality of whiskey is aimed at.

A very inferior whiskey, or more properly rum, is produced by fermenting molasses, but this is generally distilled in the cellars or back rooms of petty taverns, many of which are licensed and pay more or less revenue tax, though some are supposed to have still evaded the revenue officers.

The proportion of water used in making the mash was the subject of investigation, as affecting the issue of a case on trial. According to the evidence for the United States, 34 gallons of water is usually added to each bushel of grain in the mash, while the beer, after dilution with cold water, usually contains 50 gallons to a bushel. An expert, examined for the distiller, stated that few mash with less than 35 gallons to the bushel, more with 40, while some used as much as 47 to 48 gallons to the bushel. The best temperature for mashing was stated to be from 158° to 190° F. The proportion of whiskey to the amount of beer was stated to be 4 gallons of the former to 50 of the latter, or 3 to 3½ gallons in the 4 hot months, and 4 gallons in the 8 cool months of the year. Another witness gave the average yield of whiskey the same as stated by Dr. Squibb in his report last year—14 quarts to the bushel of grain. He stated that an excess of rye or oats over corn increases the yield as well as improving the quality.

Although the general facts in regard to this process are established, proximately, they do not always serve as data to prove false entries upon the books of distillers. The differences between old and fresh grain, the varying skill of the distillers, and the want of uniformity in the proportions used and in the size and completeness of their apparatus, are all circumstances which can be brought to bear upon juries to shield those charged with frauds, from conviction.

In the experience of the Courts attempting to enforce the penalties of the Revenue law it is difficult to establish, by absolute proofs, false entries and a variety of other frauds which are very obvious to the inspectors and others familiar with the details of the process, and the prosecuting attorneys are often made to feel that the interests of the United States are best promoted by keeping well known cases of fraud out of the Courts.

Grand juries are so constituted by the U. S. Marshals that they may, by design or accident, contain citizens interested, if not in cases coming before them, yet in the nefarious business which is brought under examination, and so widely is the distilling interest diffused over the community, and so strong is the prejudice among a large class against the interference by Government with the business of citizens, that it is not surprising that many frauds actually detected escape the penalties prescribed.

Besides this cause of failure, a number of cases of seizures of large establishments have been adjusted at the offices of the Commissioners at Washington, on the payment of forfeitures, which are wholly inadequate to satisfy the just claims of the Government, and leave the recusants with large estates suddenly and fraudulently accumulated. The knowledge of this fact adds impunity to smaller operators, who otherwise might be deterred, by fear of consequences, from tampering with the revenues. Some large distilleries seem to have such vast means at their disposal that they can fraudulently and shamelessly defy the power of the Government, and set at defiance the honesty and loyalty of the whole community. From every such stream of fraud issue a thousand rills, corrupting the channels of trade and inflicting a moral evil infinitely transcending in importance all the losses to the revenue.

What legislation is necessary to remedy this acknowledged evil, your reporter is not prepared to say. The most popular idea among us seems to have been, heretofore, that the tax on spirits should be reduced at least one-half, and the Committee appointed to confer with the Revenue Commissioners advocated this, as likely to increase, rather than diminish the revenue, while it would relieve what some regard as an oppressive burden upon alcohol used in the preparation of medicine, and in the arts. That the temptation to fraud would be reduced by this change, is obvious, but I have not inquired of any one connected with the courts who encouraged this as a practicable remedy for the frauds which deprive the Government of so many millions annually. The system of false entries on the books of the distillers, carried on either with or without the connivance of officers of the Government, is so difficult of detection, and so very productive, that it is not easy to see how it could be corrected. If the duty was only one dollar per gallon, the sum accruing from withholding it to the extent of a single barrel a day, which would be a very small proportion of the product of a large distillery, would reach over ten thousand dollars a year,—itself a handsome annual income.

All the checks provided by law to secure faithful returns of the amount of material used, and of spirits produced in distilleries, are ineffectual, unless the revenue officers of the various grades are honest. We need a different class of inspectors and collectors from professional politicians and other adventurers, too indolent and thriftless to earn their livings in honest employments, and fit tools and accomplices of those who have embarked in distilling for the rewards which attend its illicit or fraudulent practice. We need faithful men, whose permanent employment and promotion are dependent not upon the success of a political party, but upon their honesty and vigilance, and who feel that their own interest is identified with that of the Government, and not with that of the distillers, bent on defrauding it. The lack of honest and true men in places of public trust and power is the greatest evil which afflicts our country, and nowhere is it more manifest than in connection with the revenue. Every true patriot should lay this subject to heart,

and seek a remedy before the corruptions, which are notorious as well in the Custom Houses as in the offices of Internal Revenue, but far more in the latter, and in many municipal offices in the great cities, shall have sapped the foundations of our cherished government itself.

It is not the object of this report to detail the facts upon this subject developed by the courts of law and others, notorious throughout the community; but it is believed that they fully justify the assertion that, in the department of the revenue collections connected with alcoholic liquors, gross dishonesty is the rule, honesty the exception.

In my investigations upon this subject, I have received some suggestions from the Assistant Attorney of the U. S. District Court for the eastern district of Pennsylvania, John K. Valentine, Esq., which are the result of much experience in the practice of that court ever since the Internal Revenue law first went into operation. In his opinion, the two most obvious improvements in the law would be, 1st, such an increase in the amount of the license or tax on the still as would greatly diminish the number of distillers, and confine the business to responsible parties; and 2d, the abolition of the system of bonded warehouses, involving the payment of the duty invariably before the spirits should leave the premises.

Both these propositions may be thought to tend towards a monopoly of the business of distilling in the hands of a few, and hence to be contrary to the alleged tendency of our institutions; but it should be remembered that the vast increase in the number of distillers since the revenue law has gone into effect is entirely attributable to the facilities it offers for enormous profits, through frauds upon the revenue. Hundreds of irresponsible men have embarked in distilling for the fraudulent gains it promises, who could not realize a living profit upon their investments if the business were legitimately followed. They can well afford to risk the few thousands of dollars invested, when the results of a few weeks of successful cheating will cover the whole cost of apparatus, material, and expenses of their establishments. Is it too much to ask that the amount of their investment should be increased, by exacting in advance a heavy tax in the shape of a license, or adequate security for their due performance of

the requirements of the law? By thus reducing the number and increasing the responsibility of distillers, the vast hordes of assessors, collectors, deputies, spies and informers could be reduced in a corresponding ratio, perhaps more honest and efficient officers could be selected, and the facilities for detecting and punishing frauds upon the revenue increased.

The existence of bonded warehouses, into which whiskey can be placed in the interval between its distillation and paying duty, and from which it may be removed for rectification on bonds being given to the collector, is a common source of fraud. Very insufficient, or even worthless bonds are often given, on which permits are granted by the employees in the offices of collectors, or by collectors themselves, who are constituted by law the sole judges of their sufficiency; and after the whiskey has been fraudulently removed, there is no other resource than these. Whiskey, after it has been branded as *rectified*, is presumed to have paid duty, while through connivance of distiller and rectifier, much that is so marked has entirely escaped, and cannot be identified by the markings prescribed by law. This common source of gigantic frauds could be remedied by the suggested modification of the law, which would require every dollar of duty to be paid before the whiskey leaves the premises of the distiller: a modification which is respectfully urged upon the attention of our law-makers, as at least worthy of their earnest consideration.

Whether a reduction of the amount of the duty is desirable to promote the necessary use of alcohol in pharmacy, is a separate consideration from the question here presented. It should be looked at in a candid and conscientious spirit, and the organization representing our profession should jealously avoid committing itself on so momentous a question until we have data for our conclusions fully satisfactory to ourselves, and likely to have weight with our law-makers. I believe that, with the improved facilities for recovering alcohol used as a menstruum, and as prices have now adjusted themselves, the profits of legitimate pharmacy have not fallen below a just and fair limit, and would not, even if the government were paid the full amount of tax on all the alcohol we consume.

All must admit that a class of artificial products so grossly

abused, and, in the main, so injurious, as alcoholic liquors, are appropriately selected to bear the chief burden of taxation; and in view of the heavy tax laid upon nearly all useful branches of industry in default of the collection of this, it is our imperative duty to strengthen the hands of Government, by cheerfully bearing our share of the burden, and aiding as best we can in rendering the law effective.

Respectfully submitted,

EDWARD PARRISH.

REPORT OF THE DELEGATES TO THE INTERNATIONAL PHARMACEUTICAL CONGRESS, AT PARIS.

To the American Pharmaceutical Association:

The undersigned, a portion of your delegates to the International Congress of Associations and Societies of Pharmaceutists, held in Paris, France, on the 21st, 22d, 23d and 24th of August, 1867, respectfully report that the Congress convened at the Hall of the Society of Pharmacy, and was numerously attended by delegates from France (60), Holland (3), the United States (4), Russia (3), Spain (2), Switzerland (2), Italy (1), Austria (4), Sweden (1), Prussia (2), South Germany (1), Hungary (1), Denmark (1) and Egypt (1). (It was regretted that none of the delegates appointed by the English were present.)

The meeting was temporarily organized by M. Bussy, of Paris, being called to the chair, and M. Robinet acting as Secretary. The venerable M. Guibourt, one of the Commissioners to organize the Congress, was absent from indisposition.

The chairman offered some general remarks, when M. Robinet stated the object of the Convention, and that it was necessary to know who had the right to vote—making a committee on credentials necessary. This was appointed, and, having reported, the roll was called to ascertain who were present.

The question as to the manner of voting, whether by states or individuals, was decided for the former: and the ratio of votes then fixed for each delegation, making forty votes in the aggregate; four of which were given to the United States.

The election of officers being in order, a ballot was cast, and Dr. Rieckher, of Marbach, in Wirtemberg, was elected by a large majority. Five Vice-Presidents were then elected, viz.: Messrs. Andrès, of St. Petersburg; Ferrari, of Madrid; Mosca, of Turin; Dittrich, of Prague; and Procter, of Philadelphia. M. Robinet was elected Secretary by acclamation, and six assistants afterwards by ballot, viz.: Dr. Flückiger, of Bern; M. Walter, of Amsterdam; M. Schleisner, of Copenhagen; M. Tisell, of Stockholm; and MM. Mayet and Limouzin, of France. The officers then assumed their places, the President offering a few remarks suitable to the occasion.

The communications received by the Secretary, directed to the Congress, were now read in abstract, when the meeting went into consideration of the subject—a Universal Pharmacopœia for all nations. As might have been expected, various views obtained, some of which were advocated with much earnestness. A majority of those present believed the project feasible and desirable, speaking, as they did, chiefly for Germany and France. The suggestion of climatic influences on preparations was offered, but its force denied. The peculiarities of each country, it was believed, could be incorporated in an addendum or supplement, and, in reference to the language, the Latin was suggested as the only feasible medium for all. One member proposed having it in all the principal languages in one book (!). When the other points were settled and the final vote came for or against the adoption of the suggestion of a Universal Pharmacopœia, all the votes but those of the United States were cast in the affirmative, which were given in the negative for the reason that the broad differences of views in regard to many important Galenical preparations in use in America, as well as in England, together with the very numerous preparations and substances used on the continent and not esteemed by us as meritorious, were obstacles too great to permit us to believe that such a fusion of codes could receive the favorable vote of the Pharmacopœial bodies of the United States.

In regard to weights and measures the general opinion was in favor of the metrical system. M. Margraff, of Berlin, stated that the Prussian government had just adopted the metrical

weights, and had under consideration the measures of capacity. The action of our own government in rendering the use of metrical weights lawful, though not compulsory, was stated.

The second and third sessions were chiefly occupied in discussing three questions previously printed and circulated among the members. The *first* was "The Practice of Pharmacy," in three sub-questions, viz.: 1st. Shall there be unlimited liberty as in ordinary mercantile business? 2d. Shall there be a free practice with the guarantee of a diploma and personal responsibility under the common law? or 3d. Shall there be a wise regulation by law, designed to insure the public interests and protect the pharmacist?

This was the question most interesting to those present and called forth much discussion. All the delegates voted against the first view; the members from Russia, Germany, Austria, Italy, Holland, and Spain, and those from the Society of Pharmacy at Paris voted against the second view, the United States delegates voting in the affirmative. When the third view was voted for all the votes were cast in the affirmative except those of the United States, which were negative. An anomalous condition of the Congress existed: the delegates from the provincial societies of France outnumbered the whole Congress of strangers, and yet they had no vote except as a country in France, which vote was controlled by the delegates from the Society of Pharmacy. They were permitted to speak freely, and advocated their view of greater liberty with much earnestness. One of the chief points taken by the delegates favoring the third view was against the *spécialetés*, or secret formula medicines, which are so abundant in countries where pharmacy is unrestricted, and which can be reached only by a prohibitory law. Whilst admitting the gravity of this evil, our delegation considered the destruction of competition by an act of limitation and apportionment would be a greater evil, at least for America.

The *second* question was, "Is it proper to limit the indefinite multiplication of pharmaceutical shops?" This was referred to a committee consisting of Messrs. Dittrich, of Prague; Flückiger, of Bern; Peltz, of Riga; Gastinel, of Egypt; Török, of Hungary; Kretschner, of Breslau; Walter, of Holland; and

Faber, of New York; who reported in favor of limiting the number of pharmacies, and not leaving it open to competition; M. Faber alone being in the negative.

The *third* question was, "Is it proper to demand the creation of institutions of a disciplinary character, destined to maintain the '*honorability*' of the profession of Pharmacy, by insuring its correct practice, and to represent and protect it in all its exterior relations?" The committee to whom this was referred reported in the affirmative, which view was adopted by the Congress.

As some of the speakers had alluded to pharmacy in America in a way calculated to give a wrong impression, a short statement was prepared by one of us, and permission obtained to read it in English, so that it might go on record. The origin of the colleges was referred to, and the rise of scientific pharmacy in the United States referred to the separation of dispensing medicines from the practice of Medicine. A general view was given of our progress, and allusion was made to the subjects of the Pharmacopœia, and weights and measures.

On the morning of the second day it was announced that M. Guibourt was dead, which produced a profound sensation, as many had expected to see him at the Congress. M. Guibourt had attained his seventy-seventh year and was quite infirm, though in the enjoyment of his faculties. He was President of the Society of Pharmacy of Paris. By subsequent action the members arranged to attend the funeral on the 24th inst., at noon.

On the morning of the fourth day the meeting looked toward an adjournment, earlier than had been expected. When the question of appointing a committee to superintend the convening of the next or *third* International Congress, it was agreed to refer that business to the existing committee, viz.: Messrs. Schröders, of Russia; Robinet, of France; Beckert, of Austria; Rieckher, of Wirtemberg; and Dr. Bley, of Prussia; and also leaving the place and time to be fixed by them. The general impression seemed to be that Vienna would be the next place of meeting. The usual vote of thanks was given to the officers of the Society of Pharmacy.

After the third session it was understood that at seven o'clock in the evening the members were all invited to a dinner, given

by the Pharmaceutists of Paris, which was numerously attended and passed off in the usual manner of such occasions, with satisfaction to many.

It was also announced on the morning of the fourth day that at three o'clock P. M. (Aug. 24th) the members were invited, by the authorities of Paris, to meet at the Column, in the Place du Chatelet, and make a subterranean excursion, by rail and boat, in the great sewers of Paris. At the time appointed the members, to the number of 60, descended a stair case to the main sewer, which was probably at this point 15 feet wide and 12 feet high, and, besides a central canal for the ordinary drainage, has capacity sufficient to meet sudden rains. These sewers are also the avenues for the great water mains supplying Paris, and also for the local telegraph wires, which are conducted along the ceiling. Having entered five cars, comfortably cushioned, the party set out propelled by the operatives, employed in the sewers, who walked alongside. We passed from the point of departure, under the Rue de Rivoli, to the Place de la Concorde, and thence to a point some distance north-west of the Madeline, having travelled perhaps two miles without annoyance from disagreeable odors, and to the gratification of the members.

With warm wishes for the successful accomplishment of the business of the Association, at its New York meeting, we submit this hasty report.

WILLIAM PROCTER, JR., } *Delegates.*
JOHN FABER, }

Paris, August 27, 1867.

REPORT OF COMMITTEE ON SPECIMENS.

It is with much pleasure that the Committee on Specimens can present a report in extent and variety commensurate with the increased interest and importance of the National Association. No one who visited the rooms appropriated for the purpose could have been otherwise than gratified at the great improvement shown by the large display of chemicals, pharmaceutical preparations and apparatus, evidencing a desire on the part of manufacturers to advance with the scientific requirements

of the age. May we not hope that this beautiful display is only a precursor of what we may expect in the future?

The Committee would suggest that on future occasions exhibitors should forward descriptive lists with the articles sent for exhibition, thus saving much labor to the Committee, and best consulting individual interests.

The Committee with pleasure record their appreciation of the taste Mr. P. W. Bedford displayed in arranging the articles sent on exhibition, and acknowledge the valuable services he rendered them in making this report.

CLASS I.—CHEMICALS, DRUGS, PHARMACEUTICAL
PREPARATIONS.

Carter and Scattergood, Philadelphia.

Two large crystalline masses of the red and yellow prussiates of potassa. Each of the specimens weigh about forty pounds, and presented a handsome appearance.

J. F. Luhme & Co., 22 Lafayette Place, New York.

The chemicals exhibited by this firm are principally of foreign manufacture.

Antimonic acid,	Carbonate of potassa, C. P
Molybdic “	Caustic potassa,
Tungstic “	Caustic soda (alcoholic),
Stearic “	Pyrophosphate of soda,
Oxide of cobalt,	Carbonate of soda, C. P.,
“ copper,	Tungstate of soda,
“ chromium,	Nitrate of nickel,
“ manganese,	Salicine,
“ nickel,	Bisulphuret of tin,
“ uranium,	Caustic baryta,
Oxalate of ammonia,	Acetate of copper,
“ cerium,	Chloride of copper,
Benzoate of ammonia,	Nitrate of copper,
Succinate of ammonia,	Sulphate of magnesia,
Chromate of potassa,	Aluminium, in a large sheet.
Bromide of potassium,	

L. Martin & Co., Philadelphia and 59 Cedar Street, New York.

The articles exhibited by this firm are all of their own make, and it was stated that they were taken from ordinary stock without any special selection.

Acetic acid. This acid has the sp. gr. 1.048, is entirely free from any empyreumatic odor, and is the best acid of American manufacture your Committee have seen.

Carbolic acid; gallic acid, a handsome specimen. Muriatic acid, C. P., nitric acid, C. P., and sulphuric acid, C. P., claimed to be entirely reliable as reagents in the finest analytical operations, not being contaminated with any traces of the impurities frequently found in acids labelled C. P. Valerianic acid, a fine sample; oxalic acid, recrystallized and free from any impurity.

Subnitrate of bismuth, free from arsenic; ammonio-citrate of bismuth, a handsome scale salt of pearly lustre and freely soluble in water.

Muriate of ammonia, granulated; oxalate of ammonia, pure, for analytical purposes; phosphate of ammonia; phosphate of ammonia and soda.

Acetate of potassa, very white and handsome; carbonate of potassa, C. P.; chlorate of potassa.

Citrate of iron and quinine, U. S. P.; citrate of iron and ammonia, citrate of iron and strychnia, citrate of iron; carbonate of iron, perfectly soluble in muriatic acid; pyrophosphate of iron; iron by hydrogen: this preparation is a very superior article.

Acetate of zinc, carbonate of zinc, oxide of zinc (a superior article), sulphate of zinc, valerianate of zinc.

Chloride of barium.

Sulphate of manganese.

Sulphate of copper.

Strychnia in powder, a handsome article.

Sulphate of morphia. This alkaloid is manufactured by but few houses in this country, much that is put up being of foreign production. The specimen in the collection was one of the finest your Committee have seen.

C. Pfizer & Co., 13 Beekman Street, New York.

Bromide of ammonium, hypophosphite of ammonia, iodide of ammonium. Nitrate of ammonia, crystallized, and nitrate of ammonia, fused—handsome specimens; oxalate of ammonia, valerianate of ammonia.

Sulphuret of antimony.

Iodide of arsenic, in large masses.

Subcarbonate of bismuth; subnitrate of bismuth, in cones, said to be free from excess of acid and also from arsenic; borax, a handsome specimen: this house are large manufacturers of this salt.

Bromide of cadmium, iodide of cadmium, in pearly scales.

Ammoniated copper, carbonate of copper; sulphate of copper, in large crystals.

Iodine, resublimed.

Carbonate of iron, precipitated; citrate of iron, citrate of iron and ammonia, citrate of iron and quinine, in handsome scales; lactate of iron, protosulphate of iron and ammonia, sulphate of iron and ammonia, sesquichloride of iron, pyrophosphate of iron.

Acetate of lead, a handsome specimen of crystals.

Hypophosphite of lime, ammoniated mercury, corrosive chloride of mercury, red oxide of mercury.

Piperin, in splendid crystals.

Acetate of potassa, bromide of potassium, caustic potassa, cyanuret of potassium, iodide of potassium; permanganate of potassa, unusually elegant and large crystals; phosphate of potassa, tartrate of soda and potassa.

Nitrate of silver, in unusually large crystals, free from acid; chlorate of soda, hypophosphate of soda.

Iodide of sulphur, in large masses.

Strychnia, in powder and crystals; nitrate of strychnia.

Acetate of zinc, valerianate of zinc.

Gallic acid, tannic acid, of fine appearance.

Rosengarten and Sons, Philadelphia.

This well-known house exhibited the following articles, which were all of apparent good quality, and many handsomely crystallized:—

Bromide of ammonium, iodide of ammonium, nitrate of ammonia, crystals; nitrate of ammonia, fused.

Oxychloride of bismuth, subnitrate of bismuth, tannate of bismuth.

Bromide of cadmium, iodide of cadmium, chromic acid.

Sulphate of cinchonia.

Citrate of iron, citrate of iron and quinine, carbonate of iron, ferrocyanide of iron, tartrate of iron and ammonia, sulphate of iron and ammonia.

Resin of jalap.

Iodide of lead.

Sulphate of manganese.

Biniiodide of mercury.

Acetate of morphia, muriate of morphia, sulphate of morphia.

The morphia salts are produced largely by this house. They are perfectly reliable, and the specimens on exhibition, particularly the sulphate, were of fine appearance.

Bromide of potassium. (This salt is produced in large quantity by this house.) Cyanide of potassium.

Piperin, in handsome crystals.

Sulphate of quinine. (A gallon bottle filled with this salt, which was beautifully crystallized, was a feature of the products of this house.) Tannate of quinine.

Nitrate of silver.

Citrate of soda, pyrophosphate of soda, iodide of sodium.

Strychnia, in crystals and powder.

Tannic acid.

Veratria.

Carbonate of zinc, chloride of zinc, phosphate of zinc, tannate of zinc.

E. S. Wayne, Cincinnati, Ohio.

Crude tartar, bitartrate of potassa in powder, tartrate of potassa and soda in crystals, tartaric acid in crystals.

These specimens were of unusual interest to most of those present, as being the first manufactured from American wines which have been exhibited. A paper from Mr. Wayne on the subject will be found in the Proceedings, and is of much interest.

Opium, from Tennessee. The morphia yield of this sample was 10·2 per cent.

“Mata.”

Quicksilver ore from North Carolina.

Skin of gizzard of South American ostrich.

Papers from Mr. Wayne, explanatory of the above objects, will be found in the Proceedings.

W. H. Schieffelin & Co., 172 William Street, New York.

The articles exhibited by this house were in illustration of some portions of the report of the Committee on the Drug Market, presented by Mr. Wm. A. Brewer, Chairman.

Ants' eggs; coumarin; cod liver oil, a fine sample.

Kamala; kousso, a fine specimen; extract of kino; glycerin, made in Vienna; (a good article, but not wholly inodorous, nor equal to Bower's make). Oil of peppermint, from Hale & Parshall, manufacturers.

Quillai bark, used much in South America in lieu of soap.

Sumbul or musk root.

St. John's bread.

Sulphate of soda, in very large crystals.

Tonka beans, in pod.

Xanthorrhœa, or Botany Bay gum.

W. J. M. Gordon & Co., Cincinnati, Ohio.

Samples of glycerine.

E. B. Phillips & Co., Newfoundland.

Cod liver oil, a fine sample.

Edward Parrish, 800 Arch St., Philadelphia.

Fifteen samples of granular effervescent salts, manufactured by Peter Squire, London:

Seidlitz powder,	Citrate of magnesia,
Kissingen salt,	Marienbad salt,
Cheltenham salt, .	Carlsbad salt,
Citrate of cinchonine,	Citrate of iron,
Citrate of iron and cinchonine,	Carbonate of iron,
Citrate of quinine,	Citrate of potash,
Citrate of iron and quinine,	Carbonate of bismuth.
Ginger beer,	

Mellor & Rittenhouse, 816 Filbert St., Philadelphia.

This enterprising house exhibited samples of effervescent citrate of magnesia and Seidlitz powders, of their own make, and some fine extracts made by Wm. Ransom, of Hitchin, England. The extracts exhibited were dandelion, hyoscyamus, rhubarb, Indian hemp, nux vomica, belladonna, ignatia, and digitalis. The extracts appeared to be of excellent quality, though some of them were rather too soft for convenient use.

Charles Ellis, Son & Co., N. E. cor. 7th and Market Sts., Phila.

This house exhibited samples of granular effervescent Kissingen, Vichy and Saratoga salts, citrate of magnesia, and also a ferrated elixir of bark.

In illustration of a paper read by Evan T. Ellis, the Pennsylvania Salt Company of Pittsburg presented some specimens of cryolite, and various preparations obtained from its manufacture.

Bullock & Crenshaw, N. E. cor. 6th and Arch Sts., Phila.

This house exhibited ninety-six specimens of sugar-coated pills and granules. They presented a very handsome appearance, being uniform in size and shape, and having a very smooth finish.

Wm. R. Warner & Co., 154 N. Third St., Phila.

This firm exhibited a large assortment of sugar-coated pills and granules, nearly one hundred samples being on the shelves.

C. Lewis Diehl, Louisville, Ky.

Samples of syrup of senega, illustrating his paper on that subject, as also a specimen of colchicine. Mr. Diehl read a paper on colchicine, at this meeting.

Wm. Neergaard, 1183 Broadway, New York.

Eighteen specimens of cinchona barks, presented to Mr. Neergaard by Prof. Winckler, of Darmstadt.

This series of cinchonas were unusually interesting, from the fact that each had attached to it a full description, botanical and commercial; also the chemical analysis, as made by Prof. Winckler.

REPORT ON SPECIMENS.

Hance, Griffith & Co., Philadelphia.

A neat and very convenient army medicine chest, arranged to be carried as a pannier. When open for use, it at once displays all the contents of the upper part of the chest, and is well adapted for the purpose alluded to. The chest was filled with samples of fluid extracts and sugar-coated pills, of their manufacture. The chest and samples were donated by the firm to the New York College of Pharmacy.

B. O. & G. C. Wilson, 18 and 20 Central St., Boston, Mass.

Thirteen packages of pressed herbs, each one pound in weight, and taken from stock without any special selection. The herbs as sent out by this establishment are particularly fine, being freed from the stems and leaf stalks, and, though firmly pressed, yet the leaves are not destroyed in their form or texture. In appearance, and every other desirable quality, they are superior to any samples of pressed herbs your Committee have ever seen. The samples on exhibition were—

Peppermint,	Spearmint,
Pennyroyal,	Sage leaf,
Motherwort,	Life-everlasting,
Hyssop,	Wormwood,
Catnip,	Boneset,
Tanzy,	Summer savory.
Lobelia,	

Also, a variety of roots and leaves, in one and two ounce packages.

Borden & Currie, Elgin, Ill., and 110 E. 29th St., New York.

Extract of beef, in cakes.

This extract of beef is produced at their factory at Elgin, Ill., from cattle purchased by them for the purpose. It was stated by one of the firm that the *whole of the animal*, including all the *choice parts*, such as sirloin, tenderloin, roasting pieces, &c., are used in making this extract. It is said to be *free from gelatine*, and to represent *twenty times* its weight of fresh and wholesome beef. It is put up in cakes weighing two ounces each.

John W. Shedden, 363 Bowery, New York.

Prepared flour of bran.

This is a new dietetic preparation, proposed for use in dyspepsia and diabetic affections. It is highly recommended abroad, and is said to be an excellent form of food in the troubles alluded to.

Howell & Onderdonk, 112 Liberty St., New York.

Elixir cinchona, iron and bismuth, elixir cinchona, iron and strychnia, elixir valerianate of ammonia, elixir valerianate of ammonia and quinine, liquid bismuth, syrup citrate of iron and strychnia, syrup iodide of starch.

The Pharmaceutical Association of Washington, D. C., sent eight specimens of preparations made by local non-official formulæ; the book of non-official formulæ was also sent with the specimens.

These formulæ are the result of a conference between the physicians and pharmacutists of Washington, and published that there may be uniformity in the articles.

Zimmerman & Co., Cincinnati and New York.

Deodorized alcohol.

Catawba brandy, containing 51 per cent. of spirit.

G. Weiber, M. D., Williamsburgh, N. Y.

Twelve varieties of artificial mineral waters, in syphon bottles.

High Rock Spring Company, Saratoga and New York.

The water of this celebrated spring was on draught during the sessions of the Association. The analysis of Professor C. F. Chandler shows this spring to contain a large amount of saline ingredients, as also of carbonic acid.

A. R. Lawrence & Co., Saratoga, N. Y., and 47 Warren St., New York City.

Water from "Excelsior Spring," on draught and in bottles.

The water from this spring was on draught, during the sittings of the Association, both in the natural state and charged with

carbonic acid. The water of this spring has obtained an excellent reputation as a remedial water. One noticeable feature is the mode of bottling the water. Instead of being pumped into barrels or bottles, it is run into them under hydrostatic pressure, thus retaining all the carbonic acid which exists in the water naturally. A nicely arranged air pump, which is connected with the barrels, forces the water from them in the same condition in which it issues from the spring. The Committee deem this a very great improvement in the dispensing of natural mineral waters.

CLASS II.—OBJECTS REPRESENTING PHARMACEUTICAL PROCESSES, APPARATUS, BOOKS AND MISCELLANEOUS ARTICLES.

This class of objects, for convenience, will be arranged under the following sub-divisions: balances, instruments, pharmaceutical and chemical apparatus, mineral water apparatus, India rubber products, glass ware and labels, books, engravings and illustrations.

BALANCES.

Becker & Sons, Hudson City, N. J.

One large analytical balance, in case; one dispensing balance, in case; two dispensing balances; one gold or bullion balance; decimal or French weights, two sets; grain weights, two sets.

The balances made by this firm are justly celebrated for their accuracy, durability, and strength. While they are light and neat, they have great strength, and will carry, without injury, a greater load than they are designed for when made. Their finer balances are considered by chemists and assayers equal in accuracy to any made in Europe. The U. S. Treasury Department uses them in all the mints and assay offices, in lieu of the former balances of foreign manufacture, while in many of the other Departments they are being adopted. The large analytical balance on exhibition was purchased by Prof. C. F. Chandler for the School of Mines, where the balances of this manufacture are exclusively used. The smaller balances on exhibition are

well adapted for the prescription counter, while the weights accompanying them are exceedingly accurate.

V. W. Brinckerhoff, 18 Beekman St., New York.

Five counter balances, various patterns, adapted for general use in stores ; four prescription balances.

Mr. Brinckerhoff manufactures balances in great variety of patterns, adapted for the various uses of business. The five counter balances alluded to are similar in general appearance to those known as the French or Béranger balance. Some modifications and improvements of Mr. Brinckerhoff's make this balance preferred by many. They are very accurate, durable, and convenient to the pharmacist. The prescription balances were of the usual pattern, but finished with more or less expense, and adapted to the wants of the trade. .

Buckalew & Waterman, 716 Market St., Philadelphia.

One "arc scale."

This balance is a modification of one described in the Proceedings of 1864, page 318. It is arranged with a single weight moving on a pivot, and indicating both troy and avoirdupois weights. It has also an extra beam, with movable weight to counterpoise bottles, or other receptacles for articles, which might be used to receive the article to be weighed.

J. L. Luhme & Co., 22 Lafayette Place, New York.

One specific gravity balance ; one chemical balance.

These were of foreign manufacture, and accurate.

W. H. Schieffelin & Co., 170 William St., New York.

One prescription balance, solid silver and gold plated ; one prescription balance, "Béranger style."

The first of these balances was handsomely finished, and arranged in a glass case ; while the latter was adapted only for weighing articles ranging in weight from thirty grains to one ounce.

Henry Træmner, 719 Market St., Philadelphia.

Four counter balances (Hoffman's patent) ; two prescription balances.

The counter balances have the same general external appearance as the French or Béranger balance. Its internal construction differs somewhat, there being but a single beam, thus presenting a less number of bearings, and consequently less friction. One of the balances was originally intended for the French Exposition, but was not finished in time to be sent. The sides and top were of plate glass, thus permitting the interior works, which were of elaborate finish, to be seen. The other balances were encased in marble, decorated iron and wood. The prescription balances were well adapted for that purpose, and were plated, one with gold, the other with silver.

INSTRUMENTS.

V. W. Brinckerhoff, 18 Beekman St., New York.

One case amputating instruments; one case pocket amputating instruments; one case post-mortem instruments; one set forceps, for dentists' use; one medical saddle bag.

All the above were well made, and of excellent finish.

Codman & Shurtleff, 13 and 15 Tremont St., Boston.

Apparatus of various patterns for the atomization of liquids for inhalation; useful for spraying perfumes, disinfecting sick rooms, &c.

Freezing apparatus, for producing local anæsthesia, with various forms of tubes for physicians' and dentists' use.

Apparatus (several patterns) for the inhalation of chloroform, ether, and similar liquids.

Nasal douche, for treating various diseases of the nasal passages, by means of passing a current of medicated liquid through the nostrils.

A new spring vaccinator, two styles.

One champagne syphon.

W. T. Fry & Co, 134 and 136 William St., New York.

Breast pump; cupping cups.

This new modification of apparatus, as arranged by Mr. Fry, is exceedingly simple and efficient. An India rubber bulb (such as are used on many of the patented syringes) is arranged with

valves, and connected with either a breast glass or the cupping cup. The breast glass has a rubber flange which slips over the nipple, thus preventing the pain which some instruments produce. It is not as liable to injury as some other forms of breast pumps. The exhausting bulb is easily detachable from the cupping cup, so that a number of cups can be applied with the same bulb.

Mattson Syringe Company, P. O. Box 3045, New York City.

Mattson's new style syringe, for family purposes; two vaginal irrigators.

As this is a new modification of the syringe so long known as Mattson's, it seems to require a special notice. In place of the bulb with tubes from the opposite extremities, this bulb has but one opening, the tube which fastens into it having a valve, by which the liquid is forced out through an elastic tube. The peculiar fastening of the tube to the bulb prevents leakage at the joint, while an additional metal tube permits the use of an ordinary bottle, to hold the liquid for injection. Additional tubes are provided, by which it can be used as a simple syringe for children, as also for eye and ear syringe. The vaginal irrigators are a new modification, by which the tube (through which the liquid is thrown into the vagina) is protected by an open shield, which, distending the parts slightly, allows it to be thoroughly cleansed. The irrigator can be adapted to any style of self-syringe usually sold.

J. M. Migeod & Son, 27 North Eighth St., Philadelphia.

One medicine chest; one pair physisican's saddle-bags.

The arrangement of the chest was well adapted for domestic use, as also the saddle-bag for that of the physician, each having desirable conveniences for their respective purposes, and being well made.

APPARATUS, CHEMICAL AND PHARMACEUTICAL.

J. Amaboldi & Co., 53 Fulton St., New York.

Seven thermometers, various patterns; two Mason's hygrometers, three hydrometers, one urinometer.

Bullock & Crenshaw, N. E. cor. 6th and Arch Sts., Phila.

One suppository mould.

This mould was made of brass, opening on a hinge, allowing the suppository to be readily removed when cool.

R. Dudgeon, 24 Columbia St., New York.

One hydraulic press.

This press, which was fully described by Dr. R. H. Stabler, in a paper read before this Association at its meeting in 1864, (see Proceedings Am. Ph. Assoc. 1864, page 249), is well adapted for many purposes of the manufacturing chemist or pharmacist. The press exhibited occupies a space of four square feet on the floor, is very easily worked, and capable of a pressure of ten tons.

J. F. Luhme & Co., 22 Lafayette Place.

Graduated burettes, various sizes and styles; burette stands, wood and brass; hydrometers, single and in cases; chemical thermometers; Nicholson's areometer in glass; graduated mixing bottles; apparatus for decomposing water and collecting products; apparatus for fractional distillation; Bunsen's gas burners (several patterns), Luhme's gas burner; O'Donnell's retort stand.

Luhme's gas burner is the one alluded to in a paper by P. W. Bedford on gas heat, published in the Proceedings of this Association for 1865, page 182. To what was said at that time it might be added that a modification, consisting of an upright tube, enlarged at the top and lined with black lead, admits of a small crucible, and a conical chimney over it produces the full effect of a blast, so that many articles can be readily fused, thus making the gas furnace one of the *very best* for the use of the chemist or operative pharmacist. The O'Donnell retort stand is so arranged, by double screws, that any ring may be removed without disturbing the others.

Mandelbaum & Mandel, 103 Maiden Lane, New York.

Glass ware bottles, jars, evaporating dishes, stirrers, &c.; porcelain ware jars, evaporating dishes, crucibles; retort stand and

appurtenances ; alcoholometer (U. S. Custom-house standard), in case ; mixing bottle, one litre capacity ; pill machine.

A. F. W. Neynaber, Girard Avenue, Philadelphia.

One block tin steam kettle.

This is a neat arrangement, intended for pharmaceutical or domestic purposes, by which a regular heat of not over 220° F. may be maintained.

Edward Parrish, 800 Arch St., Philadelphia.

Pharmaceutical still (copper), pharmaceutical still (tin), gas furnace, suppository moulds (two patterns), camphor ice tray, tin oil cans (with glass lables).

The pharmaceutical still is so arranged that the same head may be adapted to the boiler or the water-bath, making stills of different capacity.

Dr. W. H. Pile, Passyunk Av. and Catharine Sts., Phila.

Alcoholometers, with Tralles' scale, percentage and thermometer ; hydrometers, indicating specific gravity and Baumé's scale ; hydrometers, indicating per cent. of ammonia, sugar, &c. ; graduated tube (used with a test solution), to test the silver-bath, for photographers' use ; urinometer, in case, for physicians : graduated pipettes, tubes and measures ; specific gravity bottles, stoppered and plain, 100 and 1000 grains capacity.

The apparatus made by Dr. Pile are too well known for their accuracy to need any comment by this Committee.

A. H. Wirz, 111 South Eighth St., Philadelphia.

One pill machine.

This pill machine differs in its construction from the ordinary in having the cutting bed connected with a chilled iron frame which surrounds the machine, thus making it independent of the warping of the wood, to which, in the machines usually made, it is fastened.

MINERAL WATER APPARATUS.

Edward Bigelow, Springfield, Mass.

One "Polar" soda water fountain.

This apparatus is one of the most widely and favorably known of the kind.

William Gee, corner of Elm and Franklin Sts., New York.

One apparatus for making soda water; one draught tube.

This apparatus appears to combine all the desirable qualities to fit it for the use of those who sell soda water. It occupies but little space, is well and securely made, is exceedingly simple in working, and by means of the pump attached to it is continuous in its action.

The draught tube permits either a large or small stream of the charged water to be drawn into the tumbler, as may be desired.

John Matthews, 437 and 439 First Avenue, New York.

One glass fountain for making and containing soda and mineral waters; one glass fountain, in sections, to show its construction; one glass cooler; one coupling and joint; one solid silver-lined stop-cock (for fountain); one tin-lined stop-cock (for fountain) with polished hard rubber tube; one dispensing caster, with glass cruets, for syrups, &c.; one Matthews' draft apparatus, of Tennessee marble; one Matthews' draft apparatus, of Gryotte marble.

The apparatus enumerated presented a handsome appearance, and were much admired.

Schultz & Warker, 112 East Fourteenth St., New York.

One apparatus for injecting carbonic acid water.

J. W. Tufts, Boston, Mass.

One "Arctic" soda water apparatus.

INDIA RUBBER PRODUCTS.

O. B. Gray, 201 Broadway, New York.

India rubber juice, as taken from the tree.

A very full assortment of both hard and soft rubber goods used by Chemists and Pharmacutists, embracing syringes of all styles, funnels, pessaries, speculums, stethoscopes, water bags, and bottles.

G. E. Ranons, 35 Maiden Lane, New York.

Wheelock's reserve flow syringe, male and female patterns.

Marden Wilson, Jr., corner Ninth and Sansom Sts., Phila.

An assortment of india rubber water and ice bags, of all sizes and patterns, made under Chapman's patent.

GLASS WARE AND LABELS.

New England Glass Company, Boston, Mass.

Thirty-six quart bottles, glass stoppered, of handsome finish.

B. H. Sleeper & Co., 722 Market St., Philadelphia.

Graduated measures of one, two, four, eight and sixteen ounces capacity, made under William Hodgson's patent.

These graduates are moulded, the uniform thickness of the glass being secured by a conical plunger which is carefully adjusted. They were examined by one of the members, who informs the committee that the graduation of the measures is correct. As the graduations are made on the mould, it would follow that, if made with care, all the measures made by it would be accurate.

George W. Stoeckel, Pittsburg, Pa.

Prescription vials, assorted sizes, from one to sixteen ounce capacity, and having divisions on the side of the bottle indicating parts of an ounce.

R. Triest, 37 First St., New York.

A variety of labels, intended to attach to shop furniture.

William N. Walton & Co., 244 Pearl St., New York.

Thirty bottles of various sizes and patterns, and handsomely ornamented with the patent recess label made by this establishment.

Swift Manufacturing Co., 16 Courtland St., New York.

A large assortment of wooden boxes.

These boxes are made by machinery, of thin woods, and of every shape and size. They are very convenient to the pharmacist for many purposes, such as keeping herbs, drugs, bottles of chemicals, as also for sending articles by mail or express.

J. D. Williams, 120 William St., New York.

Thirty-four patterns of japanned tin boxes for druggists use.

BOOKS.

E. Fougere, 30 North William Street.

Two copies Dorvault's L'Officine.

Two copies Codex Française.

George Rontledge & Co., London, and 416 Broome St., N. Y.

Twenty-four volumes of scientific and popular works, the more noticeable of which were

S. Muspratt's Chemistry, 2 vols.

Rev. J. G. Wood's Natural History, 3 vols.

J. H. Pepper—Play Book of Metals. Play Book of Science.

Sir John Herschel's Familiar Lectures on Scientific subjects.

Rev. Wm. Buckland—Geology and Mineralogy, 2 vols.

Scribner, Welford & Co., 654 Broadway, New York.

Ten volumes of scientific works, among which are

C. L. Bloxam—Chemistry.

Dr. Jas. Apjohn—Manual of the Metalloids.

W. A. Miller—Chemistry, 3 vols.

Dr. A. C. Wurtz—Introduction to Chemical Philosophy.

George Wilson—Inorganic Chemistry.

B. Westerman & Co., 440 Broadway, New York.

Sixteen volumes of recent chemical, pharmaceutical and scientific works, in German.

William Wood & Co., 61 Walker St., New York.

British Pharmacopœia, 1867.

P. Squire—Companion to the B. P. 1867.

A. J. Cooley—Toilet and Cosmetic Arts.

Louis Figuiet—The Vegetable World.

J. J. Griffen—Chemical Handicraft. Testing of Wines and Spirits.

A. Normandy—Commercial Handbook of Chemical Analysis.

S. P. Sharpless—Chemical Tables.

Frank H. Storer—Dictionary of Solubilities.

Francis Sutton—Handbook of Volumetric Analysis.

Henry Watts—Dictionary of Chemistry, 4 vols.

Thos. J. Wormley, M. D.—Microchemistry of Poisons.

ENGRAVINGS AND ILLUSTRATIONS.

P. W. Bedford, New York.

Album with photographs of prominent Pharmacutists, members of the American Pharmaceutical Association.

Frame of photographs of prominent members of the British Pharmaceutical Conference.

Engraving—Interior of Jacob Bell's Laboratory in 1840.

William C. Bakes, on behalf of the Alumni Association of the Philadelphia College of Pharmacy.

Oil Painting of Professor William Procter, Jr., by F. Gutekunst.

Prof. F. J. Bumstead, M. D., 162 W. 23d St., New York.

Fifty colored plates, illustrative of *Materia Medica* and *Medical Botany*.

These elegant plates, as arranged on the wall, were an appropriate decoration to the room, and were greatly admired.

The Committee thank the Doctor for his kindness in loaning them for the use of this exhibition.

Edward Parrish, Philadelphia.

Four lithographic illustrations (plain and colored) of *Medical Botany*.

Fuller, Finch & Fuller, 130 Water St., New York, and Chicago, Illinois.

Druggist's Price Book, a large volume, intended for a large wholesale business.

In concluding this report, your Committee regret that the late period in the course of the meeting at which they were appointed, and the fact that each of them were from other cities than that in which the exhibition occurred, has delayed them in their report, as well as prevented them from giving it as much personal attention as they desired.

J. BROWN BAXLEY,

E. H. SARGENT.

F. V. HEYDENREICH.

SPECIAL REPORTS AND ESSAYS.

ON CUBEBIN AND THE DIURETIC PRINCIPLE OF CUBEBS.

BY F. V. HEYDENREICH.

"To what constituent or constituents does cubeba owe its diuretic power? and what relation does cubebin hold to the soft resin and volatile oil in the therapeutic action of the drug?"

The oleo-resin of cubebs is generally regarded as containing all the remedial properties of the drug. In order to answer this query, it was necessary first to prepare the oleo-resin, and then to separate the various substances contained in it. To this end 80 ounces of cubeb berries were taken, reduced to fine powder, and then subjected to the action of ether, for the purpose of obtaining the oleo-resin. The quantity thus obtained was 19 oz., or nearly 24 per cent. The oleo-resin was then subjected to distillation with water, to separate sufficient volatile oil for experiments, and afterwards heated on a water-bath, to drive away the remainder of the volatile oil. The loss of weight by this operation was 10 ounces and 7 drachms, showing the presence of this amount of volatile oil, or a little over 13 per cent., and leaving as residue the soft resin, cubebin and wax, amounting to 8 oz. and 1 drachm. A portion of this was reserved for experiments, and the remainder mixed with a small portion of ether and set aside to facilitate the deposition of cubebin and wax.

Experiments were first made with the volatile oil. This had a light straw color, and had to a much greater extent the odor of the drug than the green commercial article. It was tried as follows:—

Case No. 1. Three minims were given every two hours, for 10 hours, without any appreciable effect.

Case No. 2. Ten minims were given every two hours, for six hours. The effect in this case was a slight feeling of warmth in the region of the stomach, which was slowly diffused through the body, but no appreciable increase of urine could be noted.

Case No. 3. Ten minims were given every hour, for 12 hours, with a view of obtaining the constitutional effects of the oil on the system. No increase in the amount of urine could be noticed, but great inward heat was felt, amounting almost to fever. These unpleasant symptoms passed off during the following day.

Cubebin was experimented with next. By repeated crystallizations, it had been obtained perfectly pure, in white silky needles, tasteless and odorless.

Case No. 1. Ten grains were administered every hour, for six hours, without producing any effect on the system whatever.

Case No. 2. Ten grains were administered every hour, for 12 hours, and this was followed by a dose of 30 grains, without producing any effect whatever.

The soft resin had the consistence of honey, of a dark olive-green color, with some odor yet of cubeb. It was tried with the following results:—

Case No. 1. Ten grains given every two hours, for six hours, acted the following morning as a slight purgative. The urine acquired a peculiar odor, reminding one somewhat of the drug, but no increase in the secretion of urine could be noticed.

Case No. 2. Sixty grains were taken in two doses, at an interval of three hours. This acted as in the preceding case, but was accompanied by a considerable increase of urine.

Case No. 3. One hundred grains were given in five doses, at intervals of two hours. This did not operate on the bowels, but produced a considerable increase in the secretion of urine, accompanied by a slight burning sensation during the passage, which passed off with the effect of the medicine.

Case No. 4. Two drachms were taken in six doses, at intervals of two hours. This caused no increase in the secretion of urine, but, acting as an irritant, produced very decided irritation

during the passage of urine, together with a very considerable increase of heat over the body.

From these experiments, though they are perhaps too few to settle the points definitely, it would appear—

1st. That the diuretic properties of cubeb reside in the soft resin ;

2d. That cubebin, as compared with the other constituents of cubeb, is inert ;

3d. That the volatile oil acts as a carminative and stimulant, producing, in large doses, the unpleasant effects produced by other volatile oils having similar properties.

ON THE COMPOUND DECOCTION OF SARSAPARILLA, U. S. P.

BY WILLIAM SAUNDERS.

QUERY 6.—Is the direction in the formula for compound decoction of sarsaparilla, U. S. P., to macerate the ingredients in cold water for twelve hours previous to ebullition, sufficiently important to justify the delay it occasions ? and will not digestion at 200° F. for two hours be a judicious alteration ?]

The first step taken in collecting material for a reply to this query was the preparation of the officinal decoction. One-fourth of the quantity ordered in the Pharmacopœia was made at a time, containing sarsaparilla root cut into short pieces, and bruised by passing it coarsely through a Swift's drug mill. One and a-half ounces bark of sassafras root, bruised ; liquorice root, bruised, and guaiacum wood, rasped, of each a quarter of an ounce ; mezereon bark, cut into small pieces, forty grains. These ingredients were macerated in cold water for twelve hours, then placed on the fire and boiled for a quarter of an hour, small quantities of water being added from time to time to make up the loss by evaporation. The resulting liquid was strained through a fine brass sieve, and the materials squeezed with the hand to express as much of the liquid as possible. Cold water was added to the ingredients, and pressure applied as before, until a pint was obtained. This was set aside for about twelve hours, when the

liquid was carefully decanted from sediment,—the last portion, containing whatever may have been precipitated, being thrown on a filter, and when all had passed through, the filter was washed with a small quantity of water, so that none of the soluble matter might be lost.

Ingredients similar in quantity, quality, and mode of preparation were used in all the subsequent experiments, and the same process of pressing the decoction and washing the materials followed.

In the next experiment, the ingredients were macerated at 200° F. for two hours.

Endeavoring to ascertain whether the time occupied in preparation might be shortened still further, another portion was macerated at 200° F. for one hour, and in the fourth experiment at the same temperature for half an hour.

The fifth experiment consisted in macerating the ingredients for one hour in cold water, then boiling for fifteen minutes, as in the official decoction; and the final operation simply boiling the ingredients for fifteen minutes, without previous maceration.

The liquid resulting from the sixth experiment was deficient in color and strength, but the other five samples were almost identical in appearance and taste. The official and No. 5 seemed to have a little stronger flavor of *sassafras* than the other three, but the difference was very slight.

One-half the quantity of decoction obtained from each experiment was evaporated to a solid extract, of pilular consistence. These experiments were twice repeated, and I now give the average results in each case:

No. 1, the official decoction, yielded 154 grains to the pint.

No. 2, macerated at 200° F. for two hours, 158 grains.

No. 3, macerated at 200° F. for one hour, 143 grains.

No. 4, macerated at 200° F. for half an hour, 148 grains.

No. 5, macerated in cold water one hour, boiled 15 minutes, 138 grains.

No. 6, boiled 15 minutes without previous maceration, 130 grains.

That No. 4 should yield an average of 5 grains more extract than No. 3, although macerated for a shorter time, is strange,

and can, I think, be best accounted for by supposing some difference in quality in the materials used, which escaped observation, —probably in the liquorice root. In both experiments the yield was in excess of No. 3.

The results may thus be summed up: No. 2 yields four grains more of extract to the pint than the official decoction, and is made in two hours,—one-sixth of the time. No. 3, eleven grains less than the official; time, one hour. No. 4, six grains less; time, half an hour. No. 5, sixteen grains less; time, one and a quarter hours. No. 6, twenty-four grains less; time, fifteen minutes.

The difference of yield is very slight, even when the time is reduced to an hour or half-hour. I can see no reason why, in a future revision of the Pharmacopœia, the time should not be shortened; doubtless every pharmacist who has been in the habit of following the directions at present given, would hail the change with pleasure.

Samples of the decoctions are here submitted for inspection.

ON HONEY AND ITS ADULTERATIONS.

BY JERVIS W. COLBY.

QUERY 8th.—For some years past commercial honey has frequently been a subject of adulteration. What is the present condition of the trade in this article, foreign and domestic, and what are the adulterations made?

Of foreign commercial honey, West India alone is brought to this market, principally from Cuba and St. Domingo. It is always strained and, of the two, St. Domingo is the lighter, both in color and body; they rate about the same, if anything, St. Domingo is a little the higher. The principal consumers are brewers, not only in this country, but it is exported from this port to Europe, mostly to Germany.

It is now quoted at 57 @ 60 cts. gold per gallon, in bond, 80 @ 85 cts. gold or \$1.15 @ \$1.25 currency, duty paid; the duty 20 cts. per gallon.

Domestic honey is now, for the greater part, furnished by the

northern States, although there is some southern honey in the market. There is not the organized trade in domestic that exists in West India, and no domestic is exported.

The market for all kinds of honey is at present poorly supplied, it being in advance of the season.

Adulterations.—In foreign and home publications, in which I have found articles on the subject, a great variety of adulterations are mentioned, among which are cane sugar, different forms of starch, chalk, plaster of Paris, pipe clay, gypsum, &c., &c. The largest dealers in foreign honey claim to know no such thing as adulterated Cuban honey, and, after examining many specimens, I have not found one adulterated.

The same cannot be said of domestic, which is occasionally adulterated with some form of starch, to increase bulk and weight, also to improve the color and to correct any acidity it may have acquired. But cane sugar as syrup is almost the only adulteration made use of; this is not uncommon in domestic, and is found in almost all proportions, from an entirely fictitious article down, a favorite plan being honey 4 parts, white sugar 3 parts, water 4 parts; heat. It is customary to flavor both, fictitious and adulterated, with peppermint.

The presence of either cane sugar or starch is readily shown, and aside from these I think we need not mistrust that our honey is adulterated.

ON SYRUPUS SENEGÆ.

BY C. LEWIS DIEHL.

In the history of pharmacy, the present may be called the era of pharmaceutic specialities. Physicians and pharmacists are not satisfied with the production of medicines that will produce the desired therapeutic effect, but it has also become necessary to please the eye with the form, color or brightness of the preparation. It, unfortunately, too frequently happens that, in order to produce a clear solution, tincture, syrup or other preparation, a portion of its activity is sacrificed; but this is a matter of indifference (when not attributable to ignorance) to the

pharmacist preparing, or the physician prescribing it, provided only that the fancy of the patient be pleased. There doubtless exist many preparations, however, that can be improved in appearance without injury to their therapeutic action, and to these perhaps syrup of seneka belongs; but such improvement should be submitted to the approval of a body of scientific men, who are qualified to judge of its value. These considerations doubtlessly prompted the Committee on Scientific Queries to originate Query 9, which I had the honor to accept at the last meeting.

The remedial properties of seneka appear to reside chiefly in the polygalic acid (senegin); the volatile principle, virginic acid, and a bitter coloring matter probably also contribute to its activity, while the other constituents—tannic acid, gum, pectic acid, albumen, cerin and fixed oil—contribute but little if any to its medicinal powers. The problem to be solved appears, therefore, to be the embodiment of the three first mentioned constituents in the form of syrup, and if the stability of the preparation demands, to sacrifice one or all the others. The virtues of senega being, according to various authorities, readily extracted by cold or boiling water, and diluted or strong alcohol, it remains to be determined which of these, or in what manner they are best applied to the extraction of the above mentioned active principles, without extracting the inert principles favoring decomposition.

Accordingly a number of syrups were prepared with different solvents, and each syrup was divided in 3 vials, two of which were carefully sealed, the other loosely corked. One of the sealed vials was kept in a cool cellar, and the portion thus preserved designated *A*; the other was kept in the store room, exposed to all the variations of temperature, and is designated *B*; the loosely corked vial was also kept in the store room and occasionally opened, so as to represent as nearly as possible the condition it would be under in the dispensary; this was designated *C*.

I. Syrup prepared September, 1866, according to the formula of the U. S. Pharm. Not clear when first made; remained unchanged up to date; no precipitate formed; somewhat more viscid than would be warranted by the amount of sugar contained

in it; of a color, taste and odor indicative of good syrup of seneka.

II. Syrup prepared October, 1866, like I, differing only in using but $14\frac{1}{2}$ oz. of sugar to 8 fluidounces of liquid, instead of 15 oz. required by the Pharm. formula. Not clear when first made, but when allowed to stand a few weeks formed a bulky deposit, which when last examined was disseminated through about one-fourth the liquid, leaving the supernatant portion perfectly clear, limpid, and of a red-brown color. In odor and taste it corresponded with I and kept very well.

III. Syrup prepared February, 1867, like II, with which it corresponded in appearance and properties, with the exception that *C* had formed a small amount of mould on its surface during the summer months.

IV. Syrup prepared in September, 1866; the root was extracted with a menstruum of 3 measures of alcohol 0.835 to 2 measures of water; otherwise the officinal directions were followed. In appearance and properties it corresponded most closely with I, like which it has formed no deposit up to date. The portion *C*, however, formed a small amount of mould, somewhat more abundant than III.

V. Syrup prepared in September, 1866, differing from the officinal by the use of a menstruum of 2 measures of alcohol 0.835 to 1 measure of water. It was not clear, and shortly a flocculent matter separated and rose to the surface in *B* and *C*, which otherwise kept very well; *A* remained uniform. This syrup was of a brown-red color and did not differ materially in taste or odor from I.

VI. Syrup prepared in February, 1867, differing from the officinal by the use of alcohol 0.835 as menstruum. It was of a light yellow color, not quite clear, and formed a flocculent precipitate on standing a few days. In odor and taste it was decidedly inferior to the previous lots.

VII. Syrup prepared in February, 1867, in the officinal proportions, by exhausting the root by displacement with cold water, evaporating to the consistence of a thin extract, which was exhausted with cold alcohol 0.835, the alcoholic tincture

evaporated to expel alcohol, the residue taken up by water in the proper proportion and converted into syrup. This formed a beautiful clear syrup, of a red-brown color, limpid and permanent. In odor it was inferior to the other syrups, and it did not possess their aromatic taste, but in acrimony it is equal to any of them. A small amount of mould formed on *C*.

VIII. Syrup prepared March, 1867, like VII; possessing the same characters. It crystallizes, owing to the presence of a little alcohol.

IX. Syrup prepared July, 1867, like VII, differing only in the application of boiling alcohol to exhaust the aqueous extract and immediate filtration from undissolved portions. In appearance and properties same as VII.

X. Syrup prepared June, 1867, like VII, differing in the use of diluted alcohol for the exhaustion of the root, and of boiling alcohol for the exhaustion of the extract. This preparation was not clear, and in fact resembled in appearance and properties I, but was not quite so aromatic.

XI. Syrup prepared July, 1867, like X, with which it corresponds in every respect.

Syrups I, IV and V were prepared from the same lot of root; III, VI and VII from a second, IX and XI from a third, and the others from individual lots.

Portions of each lot accompany this paper.

It will be observed that syrups VII, VIII and XI were the only ones that furnished perfectly bright preparations and did not deposit or thicken. As the process pursued in their preparation is essentially the same, but differs considerably from the others, it is necessary to give it a more critical examination.

Of the principles enumerated as constituents of seneka root, we find that polygalic acid, tannic acid, pectic acid, gum and albumen are soluble in water when isolated, while virginic acid, the coloring matter, cerin and fixed oil are insoluble. As they exist in the drug, however, both the coloring matter and virginic acid are to a certain extent, if not entirely, soluble in water, as evidenced by the odor and color of the infusion. In concentrating the infusion to the consistence of syrupy extract, the

greater portion of the virginic acid is lost, but the coloring matter is retained. The treatment of the syrupy extract by cold alcohol, has for its object the separation of gum, albumen, and pectic acid, and undoubtedly accomplishes this object; polygalic acid, traces of virginic acid, the coloring matter and tannic acid remains in solution with the alcohol, and by subsequent treatment enter the composition of the syrup. Polygalic acid being but sparingly soluble in cold alcohol, when isolated, although freely soluble in boiling alcohol; I instituted experiment IX, which satisfied me that none of the active matter remained undissolved. Moreover, the residues in experiments VII, VIII and IX were, when washed with cold alcohol, tasteless, while the alcoholic tincture was strongly acrimonious—satisfactory proof that polygalic acid, as it exists in the drug, is soluble in cold alcohol. Experiments X and XI were instituted in order to determine whether a more aromatic preparation could be obtained, which would at the same time exhibit the desired properties, viz: transparency and permanence. The results were in the negative, the preparations being, if anything, inferior to the officinal syrup.

Having thus given attention to all points of objections, and refuted them experimentally as far as they lay within the scope of my knowledge, I express myself favorable to the syrup prepared according to experiment VII, and beg leave to recommend the following formula, which I hope will be examined critically and experimentally.

Take of seneka, in moderately fine powder, four troyounces; sugar, (refined) fourteen and a half troyounces; distilled water two pints, or a sufficiency; alcohol eight fluidounces. Moisten the seneka with two fluidounces of water, and allow to rest for two or three hours; then pack tightly in a conical percolator, pour on water until the infusion begins to pass, when stop the operation for 24 hours, after which resume displacement, and continue until two pints have passed, or until the root is exhausted. Evaporate the percolate carefully on a water-bath to two fluidounces and, while still warm, gradually stir in the alcohol. Transfer the mixture to a bottle and shake occasionally for several hours, filter, distil to two fluidounces, add two fluidounces

of water and evaporate again to two fluidounces. Then add sufficient water to make the measure up to 8 fluidounces, filter, and if not perfectly clear, refilter until the liquid passes perfectly clear. Pour the filtrate on the sugar contained in a porcelain dish and make syrup.

These directions, carefully followed, will insure a handsome product; it is scarcely necessary to state that the heating should be moderate; the filtrate, as stated must be perfectly clear, as otherwise the preparation becomes more or less turbid. Although only a secondary consideration, it will be observed that by this process alcohol is economized, the amount used being not half the quantity required by the officinal process, and entirely recoverable by distillation, which is not the case when a portion is absorbed by the drug.

If this process should meet the approval of the Association, I would suggest that a fluid extract of seneka and a compound fluid extract of squills and seneka could be prepared according to this process, which would afford a ready means of preparing syrup of seneka and compound syrup of squills.

Louisville, Ky., July 25th, 1867.

ON BUTTER OF CACAO.

Oleum Theobromæ, Butter of Cacao, Cocoa Butter.

BY HENRY W. LINCOLN.

QUERY 13th.—*Oleum Theobromæ Cacao*; an essay on this fat, as regards its manufacture, adulterations, uses and commercial history.

At the meeting of the Association last year, at Detroit, the writer of the following essay accepted the above query with the understanding and expectation that it would be answered by an old and valued member of the Association, and one who had made the subject of cocoa butter a special study. The member referred to, however, has been obliged to decline answering the query, on account of more pressing duties, and accordingly the writer finds himself in the position of many a business man, in being compelled to take up endorsed paper.

In the published Proceedings of the Association for 1860 will

be found a very interesting essay, from the pen of Dr. Donnelly, of Philadelphia, on *Theobroma Cacao*, in which he gives a complete account of its botanical character and commercial history, and leaves very little to be said except on the single article of its fat, which of itself alone would make what the printer would call a "lean take." The writer of the present essay has therefore been obliged to procure from other sources some matter not contained in Dr. Donnelly's paper, and will preface with a short account of the tree and its productions, and the manufacture of its fruit in various forms.

The *Theobroma Cacao* is a small and handsome evergreen tree, rising, in its natural state, to about 30 feet in height, though in a cultivated condition, under the system of cutting in, as it is called, it is not permitted to grow so high. Its leaves are about seven inches in length, elliptic-oblong and acuminate, and are quite smooth. They principally grow at the upper part of the tree, or at the end of the branches, leaving a bare trunk. The flowers and fruit, instead of growing, as usual, on a spur attached to the tender twigs and branches, and intermixed with the foliage, are borne immediately on the most solid parts of the stem and main branches, and thus at first sight it might seem that art rather than nature had been most instrumental in producing them. The flowers are very small, and clustered. The fruit is an oblong, ovate capsule or berry, six or eight inches in length, three or four inches in breadth, pointed at the end, tough and quite smooth, the color varying according to the season from green to bright yellow, and to red and purple. The rind of the fruit is very thick, and similar to a hard, tough apple in substance, but quite tasteless; when ripe this changes into a shell of a weak nature. The seeds contained in each pod vary in number from 20 to 40, embedded in a soft pinky-white acid pulp. The bean or seed itself is also invested in a husk or shell, consisting of three or four distinct membranes of different characters; and deprived of this husk, the seed, angular in shape, but of irregular form, is found to consist of several parts or lobes. These lobes are separated from each other by a very thin membrane, and are capable of being easily parted by pressure. They consist of a large number of minute cells, filled to a large extent with fatty matter and starch.

Its habitat may be described as being about the fifteenth parallel of latitude in South America. We may presume that this is its native country, because there alone it is found in a wild state. Whole forests of the cacao exist in Demarara. It is capable of being cultivated in other countries up to the twenty-fifth parallel of latitude, though not on the sea-coast, exposed to an easterly wind, which is always unfavorable to the tender blossoms. It is now cultivated, in the western hemisphere, in Central America, Brazil, Peru, Venezuela, Caraccas, Ecuador, Grenada, Demarara, Essequibo, Guayaquil, Surinam, and in Trinidad and some other of the West India Islands. In the East it has been introduced with some success in Africa, Madagascar, East Indies, Australia, and the Philippine Islands. For the best quality, however, we receive our largest supply from Caraccas, Surinam, Trinidad, and Grenada; for it seems that the mountainous regions of Grenada, and the delightful island of Trinidad, the most westward of the Windward Islands, contain on their western slopes the most fertile valleys, affording sites of surpassing loveliness, peculiarly suited for the growth of this tender and valuable tree, and admirably adapted to bring its fruit to perfection.

The cacao, being a natural product, was undoubtedly used by the aboriginal inhabitants of South America from time immemorial, and the value which was attached to the plant is evinced by the fact that the seeds were used by them in place of money, called by some of the older historians "*Amygdalæ Pecunianæ*." The earliest recorded account of its use, however, is that supplied to us by Columbus, who brought home samples of this delicious food in 1523. According to Prescott, the Spaniards found Montezuma drinking chocolate out of golden goblets, flavored with vanilla. For a long time the Spanish merchants, with their characteristic secrecy and jealousy, were enabled to monopolize the trade in cacao, and thereby kept the price at such an exorbitant rate, that it was many years before it could be used as an article of food, except in the courts and among the richest nobles, where it was considered an article of the greatest luxury, and since its analysis has been known it is not to be wondered at that everywhere it is recognized as being a superlative article of

diet, containing nearly all the elements of nutrition, exhilarating, and of delicious flavor. The Spaniards never recognized the motto of "large sales and small profits," but the reverse, and were not prone to statistical records; therefore we have no means of knowing how small a quantity of this delicious substance satisfied the wants of our forefathers.

In setting out a cacao plantation, or walk, as it is called, the coffee and cacao plants are placed in alternate rows; the coffee plant, being more bushy and short-lived, protects the young cacao from the scorching heat.

The cacao requires much care in cultivation, and, when it receives this, will yield a fair crop the fourth year. The flowering season is from April to December, and the earliest blossoms begin to ripen in November or December. The fruit ripens on one side first, of a pale pinky color; a few hours after this timely notice it becomes semi-transparent, changing to a yellow, when it is perfectly ripe; it must then be immediately gathered, as every hour deteriorates its perfection, and therefore its value. When just ripe the seeds are slightly sweet, and may be eaten like other fruit. The strong and robust of the men collect the fruit and carry it to the old men, women and children, who cut open the pods and with a blunt stick rap them and shake out the seeds. They then undergo what is called the sweating process, which requires peculiar care, as they contain so large a proportion of oil, albumen and starch, all prone to decomposition. The seeds, in convenient quantity, are placed in boxes, with closely fitted covers, which are allowed to remain closed up according to the weather, carefully watched so that slight fermentation and partial germination takes place, upon which the delicate and peculiar flavor of the cacao depends; in a similar way that grain is altered in the process of malting. The color of the seeds is produced by the action of the oxygen of the atmosphere on the acid contained in the skin in the process of fermentation. After the sweating is continued a proper time, the seeds are carefully dried in the sun, or in wet weather in houses, similar to our Shaker drying-houses, by artificial heat, and thereby the progress of germination checked.

In its raw state cacao, the same as coffee, is useless to the pub-

lic. To be made available both have to be roasted, which is the next process in order. This process is simple, and is effected in a metallic cylinder, with holes at each end, through which the vapor generated in the process is allowed to escape. The cylinder is placed over a slow fire, and carefully and gently made to revolve, so as to communicate a uniform degree of heat to the contents. By means of pieces of iron, attached in a spiral direction to the inside of the cylinder, the relative position of the nuts is varied every distinct revolution, so that each in turn approaches the side and becomes heated. This is continued for some time, until the aroma is sufficiently developed, when the nut will have become brittle, and the husks will to a certain extent be broken off and freed from the kernel. The nuts are then removed from the cylinder, and are allowed to cool in a wire gauze frame, and when cold are cracked in a mill, which, when winnowed from the husks, which are called "shells," constitute the "cracked cocoa" of commerce. Strictly speaking, cocoa and chocolate are both manufactured articles, and the name of the plant and also the raw material is cacao. Although the husks or shells, when ground with the nut in manufacturing chocolate, are less easy of digestion than the nut alone; when made into a drink by long-continued boiling, they contain a large amount of nutrition, and suitable for the weakest stomachs. In Guiana there is made from the pulp surrounding the seeds, by fermentation, a wine with a somewhat sour taste, and by distillation a spirituous liquor of an agreeable flavor is produced. The following are the different grades of cacao, Caraccas, Surinam, Trinidad, Guayaquil, Grenada, Jamaica, St. Domingo, Venezuela, Bahia and Brazil.

So slow was the progress of the use of cacao that in 1820 only about 275,000 lbs. was imported into England (increasing in 1861 to 5,480,000), owing in part to high import duties and the internal revenue taxes being peculiarly onerous, amounting almost to prohibition. The earliest notice we see of chocolate as a drink is found in an old English newspaper of June, 1659, as follows: "Chocolate, an excellent West India drink, sold in Queen's-head alley, in Bishopgate street, by a Frenchman, who did formerly sell it in Gracechurch street and Clements church-

yard, being the first man who did sell it in England. There you may have it made ready to drink, and also unmade at easie rates, and taught the use thereof, it being for its excellent qualities so much esteemed in all places. It cures and preserves the body, as is to be seen by the book, who hath it there to be sold also."

Linnæus, the father of Botany, has evinced his fondness for the cacao and its preparations when used as a drink, that he gave to it for a name that of theobroma—God-food ; whether recognizing it mythologically as the ambrosia of the heathen gods, or in a more rational and civilized theology calling it food from God, in either case it is peculiarly appropriate, for where can you find a drink in common use so harmless and so nutritious, so delicious and so refreshing as this, in the great variety of forms in which it is used, whether in the form of cocoa, shells, chocolate or bromia.

Some of the preparations of chocolate of high grade, particularly that flavored with vanilla, are eaten as an article of diet, and many of our gallant boys in blue, during the war, have hailed with delight the arrival from home of the expected cakes of chocolate, using it on the march as an article of the greatest luxury, and easy of transportation.

Perhaps it may be thought that the writer has trespassed upon the bounds of patience, propriety and prudence, in taking up so much time and space in treating upon the raw material, and leaving so little for the more prominent subject of the essay, and he may be classed with the good deacon who criticised the sermon of his minister by saying that "if the text had any contagious disease, the sermon would be in no danger of catching it."

But the query itself gives a wide range of subjects, and as the tree and its products are certainly interesting and valuable, it may be excusable to know a little more about them, particularly as there is so much confusion in the three plants, so much alike and at the same time so dissimilar—cacao, cocoa-nut and palm.

Even Campbell Morfit, considered pretty good authority in many cases, carelessly falls into the common error in classing them. In his work on Soap and Candles he speaks of oil of cacao

as being a product of the theobroma, but gives the name of cocoa butter to that from the *Cocos nucifera*.

The following, therefore, should be remembered: Butter of cacao from *Theobroma cacao*, cocoa-nut oil from *Cocos nucifera*, palm oil from *Elais Guineensis*.

Below may be found a table of the analyses of tea, coffee, and cacao, which may be found useful:

	Tea.	Coffee.	Cacao.
Water,	5.000	12.000	5.000
Thein,	3.000		
Caffein,		1.750	
Theobromine,			2.
Caseine,	15.	13.	
Albumen,			20.
Aromatic oil,	.750	.002	
Gum,	18.	9.	6.
Sugar,	3.	6.500	
Fat,	4.	12.	
Butter,			50.
Tannic acid,	26.250		
Woody fibre,	20.	35.	4.
Mineral matter,	5.	6.700	4.
Potash, (with peculiar acid)		4.	
Starch,			7.
Coloring matter,			2.
	<hr/> 100	<hr/> 100	<hr/> 100

It will be seen by the above comparative analyses of the three prominent articles of drink, that mention is made of little if any volatile oil in coffee, and none in cacao, both of which owe their peculiar properties to the characteristic odor they contain. It is therefore curious to trace the cause of the elimination of their volatile principles, in both of which it is owing to the process of roasting, and does not exist in the fresh seed.

The cacao contains an alkaloid, discovered by Woskresensky, and termed theobromine. It is strikingly analogous to thein and caffein, and especially remarkable for the large quantity of

nitrogen it contains. It is white, pulverulent, and of a bitter taste, and is nearly insoluble in water, alcohol or ether.

It is curious still further to compare the analyses of theine, caffeine and theobromine, as follows:—

Theine,	C ⁸	N ²	H ⁵	O ³
Caffeine,	C ⁸	N ²	H ⁵	O ³
Theobromine,	C ⁷	N ²	H ⁴	O ³

the first two being identical.

It will be perceived by the analysis of cacao, that it yields 50 per cent. of butter. This is probably true as to the real quantity contained in the nut, but practically the yield is about 30 per cent., as no simple process has yet been devised to extract the whole of the butter; but as what remains goes to make up an ordinary article of chocolate, it is not lost to the manufacturer. The manufacturers of cocoa do not pay much attention to cocoa butter, as a primary object, and some large manufacturers prefer to use all the butter in their preparations than to extract it by itself. The writer, therefore, has not been able to get much definite information as regards the amount of butter manufactured, or the comparative yield of the different qualities of nuts; but as the low grades of chocolate require more oil to enable the manufacturer to add the ingredients to adulterate with, and the cocoa butter yielding a good profit, this must be replaced by a less expensive fat. Therefore, supposing that cocoa butter is a valuable article of nutrition, then a larger demand for cocoa butter must necessarily result in a poorer grade of chocolate.

The ordinary process for extracting the butter is simple, and similar to that employed with other oily nuts. After roasting and grinding they are put into canvas bags and steamed, and then put into a press between hot plates of iron, and the butter which is extracted is then purified by remelting in water, by filtering through hot animal charcoal, or by the use of acids, and cast into moulds, the size and shape varying with different manufacturers.

Probably the oldest and largest cocoa and chocolate manufacturers in the United States are two rival houses in Dorchester, near Boston, one having been established in 1768, and the other in 1780. The competition of these large firms has brought the

business to perfection, and both vie with each other in serving the public with the best articles, at the lowest possible prices. This competition has enabled the manufacturers in this country to compete successfully with the French in the manufacture of high and fancy grades of chocolate; for at the late Exposition at Paris one of the above-mentioned firms received a silver medal as an award for the best chocolate exhibited; and this is more remarkable when it is said that the exhibit of that class of goods was very large and fine, and also that the famous Menier, of chocolate fame, was one of the board of judges.

The amount of butter of cacao manufactured has largely increased the past few years, and it will be surprising to many to know that one manufacturer made and sold the past year over 5000 pounds, and that without any wish to increase the sales.

Its uses are various :—

For lung complaints, used in place of cod liver oil, it has many times been found very effectual, and by its blandness and freedom from rancidity it can be used when the patient has become disgusted with some inferior cod liver oil which he has chanced to take.

Used by females during the last stages of pregnancy, as an article of diet, it has been found to have produced happy results, being highly nutritious, and being the means many times of making the food set better on the stomach than it would by any other way. This the writer has been informed by a competent nurse, who has reported a case in which the patient ate 3 or 4 pounds of cocoa butter at that period, and attributed the comfortable time during delivery to the use of it.

For the relief of piles, and for suppositories and pessaries, its use has very largely increased the past few years, and there is no article that approaches it for these purposes. By many it is used in its pure state for these purposes, or it can be made harder or softer, according to the wishes of physicians or the extremes of climate, by the addition of spermaceti and wax for hardening, and stearine or lard for softening. The preparations vary with different pharmacians—sometimes 4 or 5 parts butter to 1 or 2 parts of wax or spermaceti, as the case may be. Each has its advocates. It is used also for the coating of pills, with

good results. For preparations for roughness of the skin it stands pre-eminent, and is a rival to glycerine in that respect, such as lip salves, camphor ice tablets, &c. In the July number of the Journal of Pharmacy, Mr. Bringham, of Wilmington, Delaware, contributed an article on medicated cocoa butter, a sample of which he kindly sent to the writer with samples of butter.

In France it is used in the manufacture of some high grades of fancy soaps and pomades. Mixed with some bland vegetable oil, such as almond or castor oil, in about equal proportions, it forms a very superior and agreeable pomade. The natural odor of cocoa butter being very tenacious, it is capable of neutralizing a large quantity of any other perfume, but its own natural perfume being pleasant, it does not require the addition of much of any other.

Adulterations by animal fat may be detected by the following test :

If the drops of fat or oil floating on warm water be firm, shot-like and globular, except on the upper surface, which is slightly flattened and very small, rarely exceeding one-twelfth of an inch in diameter, then there is no doubt but that the globules in question consist of the butter of cacao. If, however, the globules be large, flat, disc-like, and exceed the size named considerably, attaining, some of them, to one-fourth of an inch, or more, in diameter, then animal fat or oil is probably present, a conclusion which may be still further confirmed in testing the fat, by keeping it for some time and observing whether it becomes rancid or not.

Its freedom from rancidity, even when kept for some time, and its brittleness, are good tests of its purity. Scraped with the nail, it breaks off in fine slivers, much the same as in planing ice. When adulterated with articles of a waxy nature this is not observed.

The best test, however, for any adulteration of cocoa butter is a cultivated taste, such as is acquired only by practice similar to that employed by dealers in teas and wines, and can hardly be described. The point of fusibility is its first distinction. Bitten and placed on the tongue it melts quickly, and leaves no harsh

or unpleasant taste, which it always does when adulterated with wax, spermaceti, tallow or stearine. Dropped on a warm iron it gives out its odor and, if adulterated largely, the peculiar odor of the article with which it is adulterated will be prominent. There is no doubt but that it is sometimes largely adulterated; but, although the writer has procured samples from various sources, he has not been able to find any that seems to be adulterated to any great extent, and he is confirmed in this by Dr. Hayes, of Boston.

Butter of cacao has been analysed by Gossman and found to contain stearine, palmitine, and olein. From the large proportion of stearine which it contains it is one of the best fats for the preparation of stearic acid.

The articles most likely to be used for adulteration are mutton or beef suet, stearine, wax, spermaceti, bayberry wax, ox marrow, and paraffine.

Stearine, from the *Cocos nucifera*, fusing at about the same temperature, might be used without easy detection.

Muspratt makes some confusion, with regard to the fusibility of cocoa butter, by saying that it *melts* at 120° and *fuses* at 85°. The last named point is more nearly correct. Its specific gravity is about .90, but this of itself is not sufficient test of its purity.

Mr. John Preston, of Dorchester, has a patent for the manufacturing of cocoa butter in a peculiar way, which, he claims, produces it in larger quantities and of purer quality. He kindly offered to let the writer see the process, but as it is only done in cool weather that privilege could not be made available for the purposes of this paper. His preparation can be seen with other samples and its quality examined. It seems to be very pure. He also manufactures a preparation for the hair, which he calls Bromade, a sample of which can be seen.

Among the samples exhibited for the illustration of this essay can be found cuts and drawings of the plant, flowers and fruit; five specimens of fruit in its natural state, and one wax specimen of the fruit representing it—colored—as in its growing state; raw cocoa, roasted cocoa, cracked cocoa, shells and several samples of cocoa butter from various sources.

The writer feels much indebted to Messrs. Baker & Co., Mr.

John Preston, and Dr. Hayes for information freely given and samples of materials furnished for the purposes of this essay, and also to several members of the Association who have furnished him with samples of cocoa butter.

In closing, the writer would express his regrets that he has not been able to present a paper which, in length and interest, is commensurate with the importance of the subject, and hopes that some other member of the Association will continue his researches and be able to present more light on the subject.

ERGOT.

BY JAMES W. MILL.

QUERY 16.—Can the existing pharmaceutical preparations of Ergot be improved, if studied in the light offered by W. T. Wenzell, and can a solid permanent preparation of Ergot be made, representing its alkaloids in a solid form?

The official preparations of Ergot are the wine and fluid extract. The wine is obtained by simply percolating the drug with sherry wine, and the desired result is well enough attained by the formula as it is. The more important preparation—the fluid extract—is made by exhausting sixteen troyounces of Ergot with diluted alcohol acidulated with acetic acid, reserving the first twelve fluidounces of the percolate, evaporating the remainder to four fluidounces, mixing the two solutions and filtering. According to the investigations of Mr. Wenzell, ergotic acid—the organic acid of Ergot, with which its alkaloids mostly are combined—is volatile. Viewed in the light of this fact, the propriety of using an acidulated menstruum in the preparation of the fluid extract is apparent, and I do not see that, pharmaceutically, the formula can be improved. I can only suggest an economical modification of it, as follows:

Take of Ergot, finely ground, and as much of it as possible
passed through a No. 60 sieve, sixteen troyounces.

Water, acidulated with acetic acid in the proportion
of two fluidrachms to the pint, a sufficient quantity.

Moisten first the fine powder with the menstruum and pack it

in a glass 'percolator with moderate pressure; in the same way treat the coarser powder and proceed with the percolation till three pints have been obtained; evaporate this on a water bath to twelve fluidounces; mix with it four fluidounces of alcohol and filter. In this process it will be observed that only the preservative influence of alcohol is called into requisition—the extraction of the drug being accomplished wholly by means of the acidulated water. A saving of nearly a dollar a pint is thus effected, and without, I think, any detriment to the therapeutic value of the preparation, for, as is well known, water is a complete solvent of the active principles of Ergot, and, though water alone cannot be used as a menstruum on account of the ready decomposition of a purely aqueous solution, yet, when the water has been previously acidulated, the stability of the percolate is insured for a period long enough to permit its concentration and subsequent admixture with alcohol, after which its permanence is secured. It would be prudent, however, to prepare the yearly supply during the cold weather of winter, as then all risk of loss would be avoided. The preliminary extraction of the fixed oil, aside from facilitating the pulverization of the drug, does not seem to be otherwise of advantage. Properly packed, the percolation proceeds slowly and regularly, and when three pints shall have passed the drug will be found practically exhausted, the last portions of the percolate giving only a slight precipitate with solution of acetate of lead or solution of bichloride of mercury and bicarbonate of potassa. Thus prepared, fluid extract of Ergot is a thin, dark colored liquid, and, though not entirely freed from inert matter and containing only one fourth of its bulk of alcohol, keeps well. Gently heated with a slight excess of potassa, propylamia is freely evolved.

Ergot is chiefly employed to facilitate parturition, by its power of promoting uterine contraction. For this purpose, and also in the treatment of other complaints where the use of Ergot is indicated, the fluid extract forms a convenient and ready means of administering the drug, and, it seems to me, satisfies every therapeutic requirement. If desired, however, an efficient solid extract could be prepared by exhausting the Ergot with acidulated water; evaporating to a syrupy consistence; precipitating

the albumen, etc., with alcohol; filtering and again evaporating to a proper consistence.

VERATRUM VIRIDE.

BY CHARLES BULLOCK.

In response to the 15th query, referred to me at the last meeting of the Association, I would respectfully report that the whole subject has been submitted to a second investigation, the results of which tend to confirm my former experience of the existence of two alkaloids in *Veratrum viride*.

I have nothing farther to add to my remarks published in the *American Journal of Pharmacy* [vol. xxxvii., page 325], concerning the characters of these two alkaloids, except to mention the peculiar odor of the alkaloids when recently precipitated and still moist—an odor recalling faintly that of the alkaline hypochlorites. This character is more marked in the product soluble in ether.

I would also call attention to the distinctiveness of Trapp's test for veratria—the rich color, resembling a solution of permanganate of potassa, afforded by heating veratria in hydrochloric acid is not evanescent. In a test tube, protected from dust and air, the color remains unchanged for two months.

The resin of *Veratrum viride*, when precipitated from a concentrated alcoholic extract of the root by pouring it into water, retains the alkaloids with great persistence. The following manipulations were adopted for its purification: After treatment with ether until exhausted by that menstruum, the resin was dissolved in alcohol and re-precipitated by pouring into acidulated water. This operation was repeated several times; the resin was then dried, powdered, and washed on a filter with acidulated water until the washings were no longer disturbed by neutralization with an alkaline carbonate.

The resin as thus purified had the following characteristics:

On platinum foil—fused, intumescd, and carbonized.

With test paper—the alcoholic solution was neutral.

With hydrochloric acid—does not dissolve and produces no change of color; on heating it imparts a brown color to the acid.

With sulphuric acid—partially dissolves, giving the usual dark brown color of carbonized matter to the acid.

Physiological Effects. One-third of a grain of the resin, dissolved in alcohol, was taken every half hour until one grain was administered. No effect on the circulation or other result was noticeable.

On a second trial the same dose was administered at the same intervals until two grains were taken. No effect on the pulse in force or frequency was observed; the only result—an unexpected one—was great prostration of digestive functions, subjecting the experimenter to a temporary but severe attack of dyspepsia. Not being familiarized to this *popular* complaint the experiment was not pushed farther.

In conclusion, the opinion derived from the investigation leads to the belief that the resin of *Veratrum viride*, when purified from adhering alkaloids, does not possess the sedative action on the circulatory system so strongly marked in the plant, and which, it has been shown, is possessed in a marked degree by the alkaloid from the plant insoluble in ether.

The chemical relation, which the alkaloids bear to veratria, I have not been able to investigate.

Philadelphia, September, 1867.

ON TINCTURA FERRI CHLORIDI, U. S. P.

BY F. V. HEYDENREICH.

“Is not the present formula for Tincture of Chloride of Iron obnoxious to criticism as regards the permanence of its products?”

Uniform success in the preparation of this tincture, in small and large quantities, have led me to the conclusion that the official formula, if carefully followed, will yield a product entirely satisfactory. But while I regard the formula as a good one, I believe the *modus operandi* capable of improvement, especially with a view of obviating the inconvenience and loss sometimes

caused by the violent disengagement of nitrous acid fumes, which takes place at the end of the process.

In preparing solutions of persalts of iron a few years ago, it was noticed that by adding nitric acid to the solutions of the protosalts in small quantities—being careful to pour it along the side of the dish and to stir after every addition—the disengagement of nitrous acid fumes was gradual and caused no inconvenience whatever at the close of the operation, while, in adding the greater part of the acid at once, but little effervescence occurs till near the completion of the process, when the reaction is violent and necessitates a large vessel. Based upon this observation, I have adopted the following mode in operating upon the officinal quantity, or two or three times that amount:

Pour the solution of protochloride of iron, prepared according to the Pharmacopœia, into a dish holding a quart, and apply heat till the temperature nearly reaches the boiling point; then add the second portion of the hydrochloric acid and half an ounce of nitric acid, and, when the temperature has risen to about 180° F., add nitric acid in small quantities—about one drachm at a time, decreasing the quantity as you near the completion of the process and stirring after every addition—until, on the addition of nitric acid, red fumes are no longer developed; then heat for a few minutes, allow the solution to cool and add water till the whole measures one pint. The process of oxidation is very rapid; there is therefore no danger of any part of the hydrochloric acid, constitutionally necessary, being driven away, for the formula provides for an ounce in excess of this quantity and more than is directed for the preparation of the crystallized perchloride of iron. Another process has been proposed and has been incorporated into the late edition of the French Codex, in which the solution of the protosalt is oxidized by passing chlorine gas through it. This furnishes a pure solution, requires but little care, and may be desirable for large manufacturing establishments, but the pharmacist, who prepares the tincture for his own sales, will find the officinal process the more convenient and economical, especially in point of time, yielding satisfactory results, if carefully and intelligently followed.

ON COLCHICINE.

BY C. LEWIS DIEHL.

There exist perhaps few vegetable proximate principles, so long known as Colchicine, about which there is so much conflicting testimony as to its nature and characters. Discovered in 1820 by Pelletier and Caventou, it has since been examined by a large number of chemists, all of whom disagree more or less in the description of its properties, and in its classification. While one chemist asserts its positive alkaloid character, another demonstrates its neutrality, and a third regards it a weak acid. Its physical characters, its odor, taste, solubility and relation to reagents are all more or less matter of dispute, and in fact there are few points on which chemists entirely agree.

When we examine text books we find that its alkaline characters are more generally accepted than its neutrality, and the experiments of Carter on the root of colchicum certainly gives strong evidence in its favor. Yet by far the largest proportion of experimenters met with results entirely contradictory; results which would at least indicate that Colchicine, as it exists in the seeds, is neutral.

Colchicine from root. As a preliminary to my experiments on the seeds, it was necessary to prepare the "colchicia" of Carter from the root. I followed that gentleman's process, (A. J. Ph. xxx. 208,) operating on 3 lb root, from which about 15 grs. of the active principle was obtained. As will be shown hereafter, my results were different from those obtained by Carter, and it is therefore necessary that I should give the process pursued by me. An alcoholic tincture of the root was reduced to a syrupy consistence by distillation, water was added acidulated with a little acetic acid, and, after occasionally shaking during 24 hours, it was filtered from insoluble matter. The filtrate was evaporated to one half, again filtered and nearly saturated with aqua ammoniæ; it was now precipitated with pure tannic acid, the precipitate washed with water until the washings passed colorless, detached from the filter and triturated with hydrated oxide of lead. The mixture was digested with strong alcohol for several hours, the alcoholic solution filtered off, and evaporated to dryness in

a capsule, in which a transparent varnish-like mass remained, readily removable with a spatula.

As thus obtained, Colchicine is amorphous, in the form of yellow scales and, when powdered, is of a very light yellow color, which, however, becomes darker on exposure to direct sunlight. It is intensely bitter, possesses but little odor, is freely soluble in alcohol, chloroform and commercial ether. Water dissolves it also readily, but the solution is slightly turbid, and in the course of a few days deposits a small amount of matter. Its aqueous solution is turned bright yellow by mineral acids, slightly tinged by oxalic acid, but not affected by acetic acid. It forms precipitates with tannic acid, phosphomolybdic acid, iodohydrargyrate of potassium, chloride of gold, chlorine water, Lugol's solution of iodine and solution of red oxide of mercury in iodide of potassium. It is not precipitated by bichloride of platinum, corrosive sublimate, neutral or subacetate of lead, sulphate or ammonio-sulphate of copper, or bichromate of potassa. Solution of sesquichloride of iron produces no reaction at first, but when allowed to stand over night produces a green coloration.

The white precipitate produced by chlorine water is not immediately acted upon by excess of ammonia, but on standing a few hours is partly dissolved.

The brown precipitate produced by Lugol's solution, is not re-dissolved by excess or by heat, but is dissolved on addition of ammonia while hot, forming a colorless or but slightly colored solution.

Concentrated sulphuric acid dissolves it with a yellow color; on the addition of a little granulated nitrate of potassa to this solution, each particle of the salt becomes surrounded with a blue zone which rapidly passes to violet, through various shades of which it passes to brown, pink, and finally returns to yellow. If an excess of ammonia is now added an onion red solution is produced, which is discolored on addition of acid, but reappears when ammonia is again added; if allowed to evaporate spontaneously a violet-colored crystalline mass remains.

When its solution in concentrated sulphuric acid is triturated with a fragment of bichromate of potassa, the yellow color

gradually changes to green, from which it passes to dirty green and finally to brown or yellow. A minute fragment of bichromate must be added, else the reaction is modified by the chromic acid liberated.

Heated on platinum foil it melts rapidly, inflames, burning with an orange colored flame, and forms charcoal, which, as the heat is increased, becomes luminous and disappears, leaving but a trace of a stain.

Thus far the principle obtained exhibited in the main the reactions of the various Colchicines as obtained by different chemists. It remained only to investigate its claims as a base.

Prof. Maisch, who has lately examined Carter's colchicia, (A. J. Ph. xxxix. 87,) states that one-sixteenth of a grain added to 5 minims of a solution of one drop of sulphuric acid in one fluidounce of water,* will render it alkaline to test paper; that a strong aqueous solution will restore reddened litmus to blue, and that the same result is attained when the dry colchicia is rubbed on moistened red litmus paper. These tests were applied with the Colchicine obtained, with negative results; one-sixteenth of a grain was added to 5 minims of acid solution prepared as above, and repeated additions, made in the same proportions, until one and a half grains had been added, when the solution became too dense to show any reaction. Yet the litmus paper was not affected, although readily blued by a drop of solution of ammonia, containing one drop in the fluidounce. These experiments evidenced that the Colchicine obtained *was not alkaline*.

From 5 lb colchicum root a second lot of Colchicine was prepared, proceeding as before, with the difference of substituting recently precipitated hydrated sesquioxide of iron for hyd. ox. lead; 32 grs. was obtained and found identical in all its properties with that first obtained.

Colchicine from Seeds. From 3 lb seeds, Colchicine was prepared by the process of Carter, substituting, as in the preparation of the 2d lot from root, hyd. sesquioxide iron for hyd. oxide

* This proportion is not correct; it ought to be one drop of dilute sulphuric acid to one fluidounce of distilled water, five minims of which mixture contain $\frac{1}{8}\frac{1}{10}$ gr. HO_2SO_3 , (not $\frac{1}{7}\frac{1}{10}$ gr., as stated in Amer. Jour. Ph., 1867, 101.)—EDITOR PROCEED. A. PH. ASSOC.

lead; 43 grs. of Colchicine was obtained, which was somewhat lighter in color than that from root.

It was found identical with the Colchicine from root in its odor and taste, in its relation to solvents and heat, in its reaction with tannic acid, chloride of gold, Lugol's solution, solution of sesquichloride of iron, mineral and oxalic acids, sulphuric acid and nitrate of potassa, sulphuric acid and bichromate of potassa, and like it produced no precipitation with bichloride of platinum, corrosive sublimate, neutral or subacetate of lead, sulphate or ammonio-sulphate of copper, and bichromate of potassa.

It differed by producing a precipitate with chlorine water immediately and wholly soluble in ammonia, in producing but faint cloudiness with phosphomolybdic acid and iodohydrargyrate of potassium, and in producing no precipitate with a solution of HgO_2 in KI.

The tests for determining its alkalinity were the same as applied to Colchicine from root, and as in that case were attended with *negative results*.

To verify these results a second lot of Colchicine was prepared from 5 lb seeds, according to the process of Hübler, A. J. Ph. xxxviii. 105, which yielded 63 grains. This process consists in boiling the crushed seeds 3 times successively in alcohol, mixing the expressed liquors, distilling to syrupy consistence, and shaking with water. The filtered aqueous liquor is precipitated with acetate of lead to separate coloring matter, and with phosphate of soda to separate excess of lead. It is then again filtered, precipitated with pure tannic acid and the precipitate washed until the washings pass colorless. It was then treated with hyd. sesquioxide of iron, instead of hyd. oxide of lead, as directed by Hübler, as the iron was found to answer the purpose as well and was more readily obtained.

The Colchicine obtained was found identical in properties with that obtained from the previous lot of seeds.

Colchicine. Oberlin first observed that, by the action of acids on Colchicine, a crystallizable substance is produced, with separation of resin. He named it Colchicine, and by experiment rendered it probable that it pre-exists in the drug, (Comptes Rendus. Dec. 1856. A. J. Ph. xxix. 235.) Walz subsequently

experimented on the same subject, but found that the solution obtained by the action of dilute mineral acids on Colchicine, had the power of reducing alkaline solutions of copper, indicating the formation of glucose, instead of resin. Ludwig and Pfeiffer, Hübler, and Prof. Maisch have since instituted experiments, by which they prove the results of Oberlin, with regard to the formation of resin, to be correct. According to these various authorities Colchicine appears to differ from normal Colchicine only in its difficult solubility in water, in assuming a crystalline form and in producing precipitates with some reagents which do not affect the latter. Hübler, by analysis, found it to be isomeric with Colchicine, but does not admit its pre-existence in the seeds, (Arch. d. Ph. cxi. pp. 10 and 194. A. J. Ph. xxxviii. 105.) He states that it displaces CO_2 from carbonates, forms white precipitates with all colorless metallic salts, red precipitates with cobalt salts, and yellowish-green precipitates with sulphate of copper. Oberlin obtained it, by the spontaneous action of concentrated aqueous HCl on Colchicine, in crystals, nearly insoluble in cold water, to which it, however, communicates slight bitterness; per-chloride of iron produces a green color with its solution; it is not precipitated by basic or neutral acetate of lead, nitrate of silver, corrosive sublimate, or infusion of galls, but appears to combine with BaO . Maisch obtained it in the form of yellow crystals, which, when dissolved in water, still gave precipitates with tannic acid, phosphomolybdic acid and iodohydrargyrate of potassium, but had no action on red or blue litmus paper. When rendered faintly alkaline with ammonia, it occasions precipitates with salts of Ba, Ca and Pb, which are soluble in dilute NO_3 .

Colchicine from Root. Colchicine from root was treated according to the process pursued by Prof. Maisch, (A. J. Ph. xxxix. 97,) by dissolving 10 grs. in 2 oz. water, adding 2 drops of concentrated sulphuric acid and evaporating nearly to dryness; it was twice taken up by the same quantity of water and concentrated, and finally taken up by water and filtered from a copious deposit formed (which was reserved for examination). The filtered solution was evaporated to dryness with 10 grs. of freshly precipitated carbonate of lead; the dry mass was exhausted

with strong alcohol, filtered and concentrated on a water-bath to half a fluidounce, it was then allowed to evaporate spontaneously in a small beaker. The Colchiceine remained in the form of lustrous yellow lamellæ.

Colchiceine, as thus prepared, is intensely bitter, sparingly soluble in water, but freely soluble in alcohol, from which, when the solution is concentrated, it is precipitated with water. It has no reaction on blue or red litmus, and is acted upon by sulphuric acid, and on its solution in sulphuric acid by nitrate of potassa or bichromate of potassa, precisely like Colchicine, the colors appearing perhaps a little brighter. Its aqueous solution is colored yellow by mineral acids and alkalis, but not affected by oxalic or acetic acids. It is precipitated by tannic acid and iodohydrargyrate of potassium. Bichloride of platinum has no immediate action, but on standing a short time a slight precipitate is formed; chloride of gold produces faint cloudiness and, on standing 24 hours, a slight precipitate is formed; HgO_2 dissolved in solution of KI, reacts like chloride of gold, but the precipitate is deposited sooner; chlorine water produces a precipitate readily soluble in ammonia; Lugol's solution reacts the same as in Colchicine; per-chloride of iron produces an immediate green coloration. Corrosive sublimate and bichromate of potassa, which have no immediate action, produce faint precipitates on standing. No precipitate or action is produced by salts of copper or lead and chlorides of barium or calcium.

Colchiceine from Seeds. Colchicine from seeds was treated like that from root. The alcoholic solution was diluted with about half its bulk of water and allowed to evaporate spontaneously. Colchiceine was deposited in the form of shining scales and exhibited the same properties and reactions as that from root, with the following exceptions.

Iodohydrargyrate of potassium produced a much smaller precipitate, while chloride of gold produced a more decided cloudiness, and the precipitate was deposited sooner.

Colchicine Resin. The deposits produced by the action of sulphuric acid on Colchicine, after thorough washing with water, were dissolved separately in alcohol, the solution filtered and

evaporated to dryness. Amorphous substances, of a yellowish brown color with a greenish cast, remained, which by subsequent experiments were found identical in properties and reaction.

The Colchicine resin was found to possess a decided acid reaction on litmus paper. When placed on the tongue it is at first without taste, except perhaps a slight sour impression; but gradually an intensely bitter taste is developed which is retained for several hours. It is insoluble in water, but freely dissolved by alcohol, from which it is not precipitated, on addition of water, unless the solution is concentrated. It is less soluble in ether and chloroform, sparingly soluble in oil of turpentine, and apparently insoluble in fixed oils. It is readily dissolved by solutions of caustic alkalis, which have the power of abstracting it from its solutions in ether or chloroform. It is dissolved by concentrated sulphuric acid with a brown color, and by concentrated nitric acid with a red color; if to its solution in sulphuric acid a little nitrate of potassa is added, a faint violet color is produced which disappears with great rapidity, leaving the solution a little lighter colored; the addition of ammonia now causes a faint onion color. These reactions are most probably produced by the presence of a little Colchicine.

As stated above, a solution in alcohol, if not too strong, is not precipitated by water; a solution thus treated will afford precipitates with per-chloride of iron, acetate of lead and sulphate of copper, but not with corrosive sublimate. These reactions, and the fact of its sparing solubility in oil of turpentine and insolubility in fixed oils, render it probable that this substance is not a resin, as heretofore assumed. The quantities obtained were, however, too small to permit of a more thorough examination, and I shall therefore, for the present, content myself with a simple statement of the facts. But whether resin or not, its acid properties are fully established, and I would therefore suggest that it be named *colchiceic acid*.

It is scarcely necessary to state that grape sugar was not detected in any of the products of decomposition of Colchicine by sulphuric acid.

The foregoing experiments having been conducted with the greatest care, and the results verified by one, and in doubtful

instances by two or three repetitions, I beg leave to give the following as a summary of my results.

I. The active principle of colchicum, whether obtained from root or seeds, is not alkaline in its character.

II. The principles obtained from root or seeds are similar in their most important reactions.

III. They are nevertheless not identical, exhibiting dissimilar reactions with some reagents.

IV. It is suggested that the difference which occurs must be ascribed to a substance not strictly belonging to Colchicine, but not readily separated by the ordinary processes for its production.

V. The results obtained correspond most closely with those of Hübler.

Observation inclines me to the belief that, by none of the processes heretofore pursued, Colchicine is obtained perfectly pure. I am the more strengthened in this belief by considering the variation in the composition of this principle as given by different authors. Oberlin gives it the composition of $C_{35}H_{22}NO_{11}$; * Bley, $C_{37}H_{30}N_3O_{11}$, or $C_{30}H_{23}N_2O_{10}$; Aschoff, $C_{23}H_{21}NO_{11}$; Hübler, $C_{34}H_{19}NO_{10}$. It is self-evident that the substances examined by these chemists must have been different; but as the processes pursued by them for isolating Colchicine were substantially the same, the cause of the difference must be impurity, which, by a slight variation in the process, is present to a larger or smaller extent. This will perhaps also explain the difference in the reaction of Colchicine as obtained from the two sources.

In conclusion it remains for me to answer the question, whether Colchicine can be isolated with advantage for use in medicine. This question can only be answered with reservation. It will under all circumstances be an expensive preparation, and its isolation is therefore only justified if it will be found to possess advantages as a remedial agent that can not be attained by colchicum root or seed. Its most economical source is colchicum seeds, and a good process is that of Carter's, which is improved, however, by the substitution of hyd. sesquioxide of iron for hydrated oxide of lead. The process is simple and of easy

* This is Oberlin's formula for *Colchicine*.—EDITOR PROC. PHARM. ASS.

execution, and if colchicia should prove desirable as a remedial agent it can be isolated with the same advantages as *aconitia*.

Louisville, Ky., August, 1867.

ON CHRY SOPHANIC ACID IN SENNA.

BY F. W. SENNEWALD.

QUERY 37.—It has been asserted that senna contains chrysophanic acid, and that its activity is probably due to that principle. Can chrysephanic acid be isolated from either Alexandria or India senna? and if so, can it be proven that this acid contributes in greater or less degree to the purgative power of senna and rhubarb?

To answer the above query, it is necessary to isolate the chrysophanic acid probably contained in the senna, and to effect this the following method, given by Batka (*Chem. Centralblatt*. ix. 622), was observed:

Four ounces of coarsely pulverized Alexandria senna were moistened with three ounces of a solution of one drachm of caustic potassa in one pint of distilled water; the senna transferred to a displacement apparatus, and the balance of the potassa solution added. The liquid passed but very slowly, being of a syrupy consistence, and, after an elapse of two hours, ceased entirely, on account of the mucilage of senna becoming dissolved. The whole was left in the percolator for twelve hours, then thrown on a strainer, and, by means of a press, the liquid separated. This, after decantation from the grayish sediment, was slightly acidulated with hydrochloric acid, upon the addition of which a precipitate was thrown down. The precipitate was collected, dried, and exhausted by chloroform, which, after spontaneous evaporation, should, according to Batka, have left the chrysophanic acid in granular yellow crystals; but according to my experiment, an oily greenish liquid, too small a quantity for further investigation, remained.

A second experiment was made with four ounces of pulverized Tinevelly senna, exhausted by percolation with one pint of alcohol of 0.945 sp. gr., in which one drachm of potassa had been dissolved, the percolate acidulated with hydrochloric acid, and the precipitate treated with chloroform as before. The chloroform, after evaporation, left a greenish semi-fluid mass, *not* chrysophanic acid.

Having failed so far to answer the query satisfactorily to myself, I would propose to leave the question an open one to all members who may feel disposed to solve it.

St. Louis, Sept. 4th, 1867.

ON BEESWAX.

BY JAS. F. BABCOCK.

QUERY 44.—An essay on Beeswax; its commercial and chemical history; the best method of bleaching it without injury to its chemical properties; and what substitutes have been found that may be used in emergencies?

The name *wax* is given to quite a number of bodies of very different origin, of which that secreted by the *Apis mellifica* is the type.

It is found in the pollen of most flowers, in the amenta of the birch, hazel, willow, oak, and in solution in the milky juice of the cow-tree. The brilliant surface of the petals of flowers is due to it. The surface of the stalk of the sugar-cane, the green fecula of the cabbage, the stones and skins of many fruits, and the berries of the *Myrica angustifolia*, *latifolia*, as well as the *cerifera*, afford it in greater or less proportion.

A fertile specimen of the latter will yield about seven pounds of berries, which contain twenty-five per cent. of wax. The wax from plants is extracted by boiling them in water, to the surface of which the wax rises, and, on cooling, may be easily removed.

It is not proposed to describe these varieties of wax, but to confine the essay strictly to the title. The following table gives the principal properties of these different bodies, as well as that of ordinary beeswax, both bleached and yellow:

	C	H	O	Melt'g point.	spec. gr.	
Beeswax, yellow.....	80.20	13.44	6.36	149° F.		Lewy.
“ bleached.....	79.20	13.15	7.65	157° F.	.966	Lewy.
Vegetable wax, Japan.....	70.00	12.07	17.93	104° F.	.970	Thompson.
Myrtle wax.....	74.23	12.07	13.70	109° F.	1.015	Giradin.
Brazil wax.....	71.88	12.03	16.09	206° F.	.980	Brande.
Cow-tree wax.....				137° F.	.969	Thompson.
Palm wax.....	80.28	13.20	6.52	161° F.		Lewy.

The wax of vegetables, with the exception of Japan wax, is less combustible, and less easy to bleach than that produced by

certain insects of the order *Hymenoptera*, particularly the honey bee.

These insects secrete the wax under the rings of their abdomen, and construct with it the hexagonal cells into which they deposit their eggs and honey. To procure the wax, the honeycomb is pressed to separate the honey from the wax. The cakes thus formed are thrown into boiling water, which dissolves what honey still adheres to the wax, which melts, and, rising to the surface, forms, on cooling, a solid cake. This being separated and remelted, forms the crude yellow wax of commerce.

In this state the wax owes its color, its aromatic odor, and its peculiar consistence, to foreign bodies and, in part, to a small amount of honey.

It is bleached by the French in the following manner :

It is melted in copper vessels, and, after complete liquefaction, is agitated with 8 oz. of pulverized cream of tartar for each 100 lbs. After some minutes' agitation it is allowed to deposit its impurities, and is drawn into a wooden vessel and allowed to deposit a further amount of foreign substances,—dirt, sand, bees, &c.,—and, while still liquid, is drawn upon a little roller partly immersed in water, to which a regular rotation is given,—thus producing thin sheets or ribbons of wax, which may be detached from the roller, being now ready for the process of bleaching. This is accomplished by the exposure of the yellow scales and ribbons, upon cloths, to the direct rays of the sun, and the dew, for several days, during which time the wax completely loses its color. It is, however, in practice impossible to bleach the wax at a single operation, as the effect takes place only on the surface, and, as the ribbons have a certain thickness, it is necessary to melt them anew, and having repeated the operation of granulating, it is submitted to a second exposure. The wax thus bleached is melted, and cast into discs of one to two ounce weight, and forms the *Cera alba* of the Pharmacopœia.

Wax from different localities does not bleach with equal facility. That from the east, from Barbary and from the central portions of France, is bleached with ease. Wax from Brazil is bleached with much difficulty.

Chlorine cannot be used to bleach wax—at least when the wax is to be used for medicinal purposes, or for candles.

It is bleached by this gas, but it combines with it, and liberates one equivalent of hydrogen.

It was in examining the action of chlorine upon wax that Gay-Lussac discovered the principle of substitution.

I am not aware of any experiments having been made with sulphurous acid, which it is not unlikely might prove of service in this direction.

Beeswax, when pure, has neither taste nor smell; as is seen by the table, it melts at 157° F., and is of a specific gravity of .966. It burns without smoke or disagreeable odor.

It does not furnish, by destructive distillation, either sebatic acid or acroleine, which property affords a very simple method for ascertaining the absence of tallow, fat, or any body containing stearine, oleine or margarine, which, under the same circumstances, furnish more or less of these substances.

It is insoluble in water, but soluble in all proportions in the fixed and volatile oils, bisulphide of carbon, and benzine. Its complete solution in these substances demonstrates its freedom from fecula, sulphur, sawdust, or bone dust, which have been found in the wax of commerce, sometimes amounting to 60 per cent. of the whole weight.

Several bodies have been isolated from beeswax: ceroleine, amounting to about four per cent.; myricine, thirty per cent.; and cerine, sixty-five per cent., being among the number.

It is saponified with greater difficulty than fatty bodies, but furnishes a handsome soap,—a product holding a prominent place among the chemical *novelties* in the British section of the Paris Exposition.

The abundance and low price of paraffine have made this substance one of the principal articles used in the falsification of wax, and perhaps of all others it is the least objectionable, being without marked physiological effect upon the system.

In answer to the last portion of the query,—wax substitutes,—it appears to the writer that paraffine is capable of taking the place of wax to a much greater extent than has been supposed. When melted with oils, it forms crystalline scales on cooling; but this property is entirely destroyed by the addition of five to ten per cent. of wax,—this addition causing the mixture to cool in a homogenous mass, without crystallization.

ON PILL MACHINES.

BY FERRIS BRINGHURST.¹

QUERY 45th.—What is the most eligible form of apparatus yet discovered, or which can be suggested for preparing pills of uniform size, at will, and can it be adapted to the wants of the apothecary on a moderate scale?

In reply to query 45, as to the most eligible form of pill machine for the use of the apothecary, I regret to say that, though I have given the subject considerable thought and attention, I am unable to suggest anything better than the ordinary pill machine now in general use, consisting of a wooden bed and handle, with a corrugated brass cutting plate in each.

This style of machine was originally made of wood entirely, and I have found, during my investigation, some of our first-class pharmacutists using them still.

In careful hands they answer very well, and have the advantage of holding on well to the cylindrical pill mass while cutting, which sometimes *slips* between the *brass* cutting plates, especially when much arrow-root is used.

For general use, however, the brass are more durable and more easily repaired than the wooden cutters, and answer well the objects mentioned in the query, viz., making pills of uniform size, at will, with rapidity.

In the American Journal of Pharmacy (vol. xxiv., page 315, and vol. xxvi., page 118) there is described a pill machine consisting of two revolving cylinders with a number of hemispherical indentations, so arranged as to come directly opposite each other as the cylinders revolve in contrary directions and compress or mould pills from the mass as it is fed to the machine.

I remember, years ago, to have seen models of this machine at the exhibition of the Franklin Institute at Philadelphia, but the style was never adopted, owing chiefly to the difficulty in freeing the pills from the cylinders with rapidity. Thin sheets of India-rubber were used to cover the cylinders, but they soon cut out, and other devices proved equally unavailing.

With a desire to obtain all the information possible and see the latest inventions in this line for saving time and labor, I applied to some of those who make pills by the millions, with various replies.

Dr. Wright said their apparatus was constructed with great labor and expense after repeated failures, and that none of his agents were permitted to see it, &c., &c.

Dr. J. C. Ayer & Co. replied that their engine, which operated by one hand, would turn out a barrel of pills per day, was invented by the Doctor, but was too complicated to describe to the comprehension of any one, &c., &c.

Mr. T. S. Wiegand, who makes and sugar-coats vast numbers of officinal and non-officinal pills and granules for Messrs. Bullock & Crenshaw, kindly invited me to visit his establishment, where I found his assistants using the ordinary machines, but cutting forty-eight or fifty pills at a time.

Dr. D. Jayne & Son use pill machines of the usual style, cutting fifty pills at a time and oil the bearings. The cutters are made of steel, which, though more costly than the brass, are much more durable, lasting them from one to two years, and requiring but little attention beyond cleaning after use; whereas, the brass had to be frequently "soaked in pickle" to clean, often to be filed out, and would last them but six or eight months, owing to the action of the mercurial salt in the pill mass.

Steel would not answer for general use, because of its liability to rust and the difficulty in cleansing and polishing when in that condition.

For the usual requirements of the apothecary three machines will answer—one for 1 gr. pills, one for $2\frac{1}{2}$ gr. pills, and one for 4 gr. pills, as each machine will allow of a little variation in the size of the pill cylinders; that is to say, a $2\frac{1}{2}$ gr. machine will in many cases cut 2, $2\frac{1}{2}$ or 3 gr. pills with almost equal facility.

During my inquiries among pharmacists I was surprised to find so many using the mortar *exclusively* for working up pill masses. For most large masses it is certainly best, but for many small masses the pill tile and square-ended spatula are decidedly preferable, affording greater facility for warming the mass and drying soft extracts, wasting less material, being more readily cleansed and affording a flat surface on which to roll out and divide the mass when desired, and yet the use of the tile is comparatively unknown in some reputable establishments.

Wilmington, Del., Sept. 2, 1867.

VOLUNTEER REPORTS AND ESSAYS.

BITARTRATE OF POTASH, TARTRATE OF POTASH AND SODA, AND TARTARIC ACID, FROM CATAWBA WINE.

BY E. S. WAYNE.

These specimens are prepared from the crude tartar deposited by Catawba wine (a specimen of which is herewith sent). It is a well known fact that Catawba wine deposits as much tartar as European wines, and from the large quantity now produced annually, a large portion of the cream of tartar consumed in the United States might be produced, if the wine-growers would take the trouble to collect it. A large portion of it they throw away in the washing or cleaning of the wine casks, and others refuse to remove it, under the impression that it is beneficial to the wine to let the accumulation remain. I have been endeavoring for some time past to encourage the saving of it, and have made the specimens sent for the purpose of showing to the wine-growers here what can be done with it, and to interest them in saving all that they may make; and hope at the next meeting of the Association to report a favorable progress.

The cream of tartar specimen is crystalline, not powdered. It was made after the following manner: The crude tartar was placed in a vessel, and water added, less than sufficient to dissolve it. It was then heated, and carbonate of soda added until the acid was neutralized, and the double tartrate of potash and soda formed; the solution then filtered, and the coloring matter removed by percolation through animal charcoal.

A portion of this was then evaporated to a crystallizing point, set aside, and produced the sal Rochelle.

The mother liquor from the above, with the other portion of the liquor, was then used for obtaining the cream of tartar and tartaric acid.

To a portion of it hydrochloric acid was added, which caused a precipitate of bitartrate of potash, as a crystalline powder. This was drained on a filter, and then washed with distilled water and dried.

The tartaric acid was made by precipitating tartrate of lime, by solution of chloride of calcium, from the other portion of the original liquor (solution of sal Rochelle), the resulting tartrate of lime washed, and then decomposed by sulphuric acid, the sulphate of lime separated by filtration, and the solution of tartaric acid evaporated to a certain point, so as to deposit any dissolved tartrate of lime, when filtered, and again evaporated and crystallized.

Cincinnati, Aug. 29th, 1867.

AMERICAN OPIUM.

BY E. S. WAYNE.

The specimen herewith sent was obtained from the white poppy by Dr. H. Black, of Bolivar, Tenn., who for several years past has turned his attention to the culture of the same, and the collection of opium from it. The specimen is of this year's growth. The quantity made by him this year was but small, ill health preventing his attending to it. He says that, in collecting it, he incises the capsule with a shallow cutting instrument, that merely cuts through the outer skin, for should it be cut completely through, the opium falls into the cavity of it, and is lost. The incisions are made early in the morning, and the accumulated opium scraped in the evening. I have tested the opium as to its morphia value by Dr. Riegel's method, a modification of Guillermond's. The obtained morphia was washed with water to remove adhering meconate of ammonia, and with ether to remove narcotin. The yield of morphia by this process I found to be 10.2 per cent. The morphia in the box with specimen is the yield; it has been re-crystallized.

ON THE RELATIVE VALUE OF THE RHIZOMA AND
RADICAL FIBRES OF PODOPHYLLUM PELTATUM
IN THE MANUFACTURE OF PODOPHYLLIN.

BY WM. A. SAUNDERS.

In commerce it is well known that samples of the rhizoma of *Podophyllum peltatum*, freed from the radical fibres, are preferred, and command a higher price ; and also that the presence of an unusually large proportion of fibres is regarded as an evidence of inferiority. This preference may, in some cases, originate from the fact that the fibres are often associated with a considerable quantity of dust and other foreign matter, but however clean they may be made, the prejudice still exists in their disfavor.

To determine how far this objection is grounded on any deficiency of strength in the fibres as compared with the rhizoma, the following experiments were tried :

Eight ounces of the rhizoma, carefully freed from fibres, were ground in a Swift's drug mill sufficiently fine to pass through a sieve of twenty-five meshes to the inch. Eight ounces of root fibres, free from rhizoma, were treated in a similar manner. These were each moistened with four ounces of alcohol, and packed in separate percolators. After macerating for twenty-four hours, fresh alcohol was added in small quantities at a time, until twenty ounces had passed through each, when the material was found to be exhausted.

The tinctures were evaporated to the consistence of syrup, and precipitation effected with water alone, according to the United States Pharmacopœia, when the precipitates were carefully collected and dried. From the rhizoma the yield was one hundred and thirty-seven grains, and from the radical fibres one hundred and thirty-seven and a half grains,—showing that there is no reason for regarding samples of root containing a large amount of fibres as in any way inferior, provided they have been carefully cleaned.

ON COMMERCIAL JALAP.

BY EDWARD R. SQUIBB, M. D.

A few notes made during the past six years upon the character of this drug as casually met with in the largest market of this country, present some points well worthy of serious consideration.

Ordinary merchantable jalap, from low grade through fair and good up to prime quality, yields from 11 to 16·25 per cent. of resin, and the proportion of resin is the true and only standard of quality and value. From this it is seen that the drug is so variable in quality as to have a range of at least 5·25 per cent. on 16, or that some lots are one-third more valuable than others. This taken in connection with the circumstance that the stock in trade is always below the average, and the better qualities very rare, serves to explain the fact that in its more legitimate channels of use this drug, within a few years past, has rapidly lost reputation. During the period of this rapid decline in quality the price has more rapidly advanced, and this condition is so great a temptation to adulteration and falsification that the markets rarely withstand it. In the case of jalap the substitution of other roots, the admixture with rootlets and immature tubers, and the sending to market imperfectly dried, have all been partially successful, but the drug is so definite in its physical character that such falsifications could not be practiced to a great extent without great damage to the market prices so long as the article remained in first hands, and could not be got into the drug mills. Some other mode of falsification, therefore, seemed to be required, and this has probably been found in a more or less partial exhaustion of the root, without breaking it up, before it is sent from the place of production.

In the early part of 1861 a lot of 18 bales, of about 200 lbs. each, arrived in this market, and was powdered and dispensed over the country, containing only 1·8 per cent. of resin. The tubers were fine and large, of good bright color, good odor, a little light in weight, and of a very tough consistence and starchy looking. They were very thoroughly cut in the direction of the

long diameter, but the parts not separated, and still the drying appeared imperfect. No fair judge of jalap would have bought this lot at any ordinary price, and it was probably sold at a low price, and bought on speculation by one or more houses whose market was for powdered jalap, and near to the consumers who would not be likely to be over critical. This lot was traced to a large drug mill, and there lost sight of because it made a very handsome powder not distinguishable from better grades.

Later in the same year a lot of 7 bales, of about 200 lbs. each, inferior in appearance to the last lot, came consigned to a large drug house, and was sold for powdering. Much of this looked unlike jalap, but was probably the rootlets, and this portion did not appear to have been subjected to fraudulent treatment. This lot yielded 2.22 per cent. of resin, all of which appeared to be true jalap resin, though of lighter color than is usual.

In the early part of 1863 another lot, of unknown size, but probably not very large, was encountered, looking bright and well—indeed much too clean and bright—tough in consistence, devoid of resinous appearance, and light in weight. This contained 3.3 per cent. of resin. What became of it is not known.

Within the past three months a lot of 95 bales, 25 of which are said to have been re-shipped to France, was offered by broker's sample in this market. Although recognized at first sight as true jalap, unmixed, and perhaps not far out of the common range of the common market, there was yet something amiss about it to the practised eye which first saw it in the broker's hands. It was tough and light, too starchy looking, and had too strong a jalap odor. To the writer's less experienced judgment it at first did not seem to be much out of the way in appearance, but upon assay it proved to contain about 8 per cent. of resin. The tubers of the sample were sawed in two, and one-half used for assay. The other half is presented for inspection with this paper. These four instances coming naturally and unsought for, within the observation of one who sees so little of this drug as the writer does, leads to the inference that these were not the only cases of this kind which occurred within the past six years; and the testimony of so good an authority as Mr. Daniel Hanbury, of London, has recently been given to the variable and

precarious character of this drug, as found in the market with which he is so familiar.

In reasoning upon the condition of jalap here mentioned, with the specimens under close observation, the writer has arrived theoretically at the conclusion that all such jalap is partially exhausted in Mexico before being exported, and that increasing skill in this practice and close calculation of the neat results in the markets is leading those who practice this fraud to a more and more limited exhaustion, in order better to escape detection. The facility of exporting alcohol cheaply from this country adds to the probability of the view here taken.

An assay of jalap is one of the simplest and easiest processes in applied Pharmacy, and no pharmacist should buy or dispense powdered jalap without previously testing it. About an ounce of the powder, carefully weighed to within a grain, is thoroughly wetted with say $1\frac{1}{2}$ f $\bar{3}$ of stronger alcohol, and the mixture transferred to a small funnel arranged for percolation. Stronger alcohol is then poured on top until the percolate ceases to give a cloudiness, when a drop is allowed to fall into a vessel of water. The percolate is then evaporated to a syrupy consistence, and a little water carefully added to it while hot. It is then poured into 4f $\bar{3}$ of cold water, with active stirring, and the precipitated soft resin collected in a capsule and dried with constant stirring until a thread of it drawn out by the stirrer is perfectly brittle. The capsule having been previously tared, it is now very easy to obtain the weight of the dry resin, and calculate its percentage proportion to the powder. As the ordinary merchantable root yields from 11 to 16 per cent., and as this loses from 10 to 14 per cent. in powdering, any sample of powder that does not yield over 12 per cent. of dry resin should be at once rejected as unfit for medicinal use.

Brooklyn, N. Y., Aug. 21st, 1867.

SOLUTION OF BI-MECONATE OF MORPHIA.

BY E. S. WAYNE.

In the formula given in the Philadelphia Journal of Pharmacy, by Prof. Wm. Procter, for the above solution, he has omitted a

very important point,—namely, the preparation of an article having an uniform strength. No direction is given therein to that effect. This preparation, made as directed in the formula mentioned, at different times, and from different lots of opium, will have a variable strength, as it is well known that the opium of commerce does not yield a constant per cent. of morphia. In making the solution of bi-meconate of morphia, I start with the presumption that a good article of opium, dry or in powder, should contain at least $12\frac{1}{2}$ per cent. of morphia, and, whether the yield I obtain from it is more or less, make up the solution to that standard,—equal to 75 grains of morphia to 16 fluid-ounces of the solution.

SWEET SPIRIT OF NITRE.

BY A. THEOD. MOITH.

Not many apothecaries will be able or willing to prepare sweet spirit of nitre according to the formula laid down in the Pharmacopœia, unless he is the owner of a well appointed laboratory.

It is notorious that nearly all the sweet spirit of nitre sold by druggists for 85 cents per pound does not come up to the tests of the Pharmacopœia. Unless a physician insists peremptorily on having Dr. Squibb's nitre, it is not likely that the apothecary will procure the proper article: as a pure article like Dr. Squibb's, which I have used exclusively for the last four years, costs \$1.46 per pound, the difference is too great for most.

In this dilemma between dispensing a cheap poor article and a good one, comes to our relief, in my humble opinion, a formula by Professor Theoph. Redwood, given in the July number of the Druggists' Circular.

Struck by the *rationale* of this formula, I prepared it by this formula three or four times, and the spirit of nitre resulting answers fully all the tests of the Pharmacopœia.

Any one with the slightest claim to the name of apothecary will be able to perform the task easily, cheaply, and without any risks. A retort, a glass receiver marked with a strip of paper, pasted on, to indicate 12 and 15 ounces, a Fahrenheit ther-

mometer, besides a stove, and a stove kettle for water-bath, are all that are necessary in the way of apparatus.

Around a pencil I coiled loosely a cylinder of fine copper wire (No. 22 will do), 2 oz. ; remove the pencil, and introduce or slip the wire into the retort. Pour on this, through a long-necked funnel, a mixture made as follows :

To 1 pint stronger alcohol pour slowly, under constant stirring, 2 fluidounces sulphuric acid, sp. gr. 1.843, and then $2\frac{1}{2}$ fluidounces nitric acid, 1.42; place the retort in the water-bath, connect with the well-cooled receiver ; place the thermometer in the water-bath, and at the temperature of 175° F. distil over 12 fluidounces. Reduce now the water in the water-bath, with enough cold water, to the temperature of 60° or 65° F., and pour through the funnel into the retort $\frac{1}{2}$ fluidounce more nitric acid, and resume the distillation till 15 fluidounces are in the receiver. This ether mix with 2 pints stronger alcohol.

Remove the copper wire from the retort, wash well, and keep it for the next operation.

The cost of the three pints of ether will be not over \$1.77, and it answers all the tests of the Pharmacopœia.

For my part, I herewith tender to Prof. Redwood my obligation for his disinterested labor and genial character.

ON THE PREPARATION OF HYDRATED SESQUI-OXIDE OF IRON.

BY PHILIP L. MILLEMAN.

The following is a process whereby the pharmacist is better enabled to keep this preparation in such a condition that, when he is called upon to dispense or prepare it in cases of poisoning, he can do it in less time than otherwise laid down ; it is as follows :

Take of solution of tersulphate of iron a pint ; water of ammonia, water, each a sufficient quantity. To the solution of tersulphate of iron, previously mixed with three pints of water, add water of ammonia, with constant stirring, until in slight excess. Then pour the whole on a filter, and wash the precipitate with sufficient

water until the washings pass entirely tasteless. Lastly, mix the precipitate with four fluidounces of pure glycerin, and transfer it to a wide-mouthed bottle, which must be well stopped. And when this preparation is wanted, it is only necessary to add water enough to bring it to the measure of a pint and a half, and the preparation is complete.

The merits possessed by the preparation thus prepared over that of the United States Pharmacopœia are, first, it will keep; second, the apothecary can dispense it in less time than otherwise, and by so doing may contribute to the relief of the sufferer so much sooner.

Chicago, Ill., Sept. 1st.

LAC SULPHUR.

BY A. THEOD. MOITH.

Testing some Lac sulphur, lately bought in New York, I found it contaminated with 43 per cent. dolomite. Since then, no matter how inconvenient, I prepare it myself, with only a trace of lime.

The simplest test for the grosser adulteration is: place on a tared capsule 50 or 100 grains lac sulphur, heat over a spirit lamp till all the sulphur is burned, cool and weigh. The residue will give the amount of admixture.

ON THE USE OF BENZOIN IN OINTMENTS.

BY THOMAS DOLIBER.

In 1865 I accepted the query in regard to benzoinated lard. The query consisted of three distinct clauses, of which the first, as to the best process of benzoinating lard, was answered in a paper read before the Association last year, (see Proc. Am. Pharm. Ass. 1866, p. 224.) Continued experience has confirmed me in the belief that the formula there given is at least as good as any that has been made known. Having been told, however, by one or two persons that they were unsuccessful in preparing benzoinated lard by that formula, the preparation sometimes

having a yellowish tinge, I would say that the tincture should always be made from the best selected benzoin; the lard should be obtained in the "leaf" and rendered in the laboratory. Lard as found in the markets will not always answer the purpose, having been improperly prepared.

An attempt was made to answer the second clause, in regard to its use in mercurial ointment, which was only partly successful, the ointment not having been made long enough to become rancid. In June, 1866, three portions of mercurial ointment were made. At the end of 14 months they are found in the following condition: the first, made in accordance with the formula of the Pharmacopœia, is thoroughly rancid. The second, in which the ointment of benzoin of the Pharmacopœia was substituted for lard, is rancid, but somewhat less so than the first. The third, in which benzoinated lard was used instead of lard, still remains *perfectly sweet and unchanged*. These ointments have been exposed to the air, although covered lightly with paper, on a high shelf in a warm room during the winter, and at the ordinary temperature during the summer, as have also all the cerates and ointments experimented upon which are mentioned in this paper.

So far as I have been able to learn, it is the universal opinion of those physicians who have used the benzoinated ointments, that their medicinal properties are not injured, but are improved by the process. Especially is this the case with benzoinated ointment of oxide of zinc, which has been used for the past ten years in this city to a very considerable extent, and the use of which has with some physicians almost entirely superseded that of the officinal ointment.

Some attempt has been made to answer the final clause, as to the other ointments in which this form of lard may be advantageously used.

From the list of cerates and ointments of the Pharmacopœia, the following 17 were selected for experiment, as being most liable to rancidity..

Ceratum Adipis.

" Cetacei.

" Plumbi Subacetatis.

" Zinci Carbonatis.

Unguentum Acidi Tannici.

- " Adipis.
- " Antimonii.
- " Aquæ Rosæ. .
- " Hydrargyri Ammoniaci.
- " " Nitratis.
- " " Oxidi Rubri.
- " Iodinii.
- " " Compositum.
- " Plumbi Carbonatis.
- " Potassii Iodidi.
- " Sulphuris Iodidi.
- " Zinci Oxidi.

In all of which the benzoïn could be introduced by means of the benzoïnated lard, except the three following—ceratum cetacei, ceratum plumbi subacetatis and unguentum aquæ rosæ. After numerous experiments, the following formulas were adopted for them.

CERATUM CETACEI.

Take the quantities of the ingredients in the formula of the Pharmacopœia, melt as directed and stir the mixture constantly; when nearly cold, add two and a half fluidrachms of tincture of benzoïn* and stir the mixture until cold. It is well known that this cerate, when made by the officinal formula, is very liable to rancidity, but a portion made by the above formula on Feb. 20, 1867, still continues perfectly sweet and unchanged.

CERATUM PLUMBI SUBACETATIS.

Take of solution of subacetate of lead, two fluidounces and a half.

White wax, four troyounces.

Olive oil, eight troyounces.

Camphor, thirty grains.

Tincture of benzoïn, four fluidrachms.

Mix the wax previously melted with the oil; then gradually

*Tincture of Benzoïn.

Take of benzoïn, in coarse powder, six troyounces. Alcohol, one pint. Macerate the benzoïn with the alcohol until it is dissolved; then filter through paper.

pour in the solution of subacetate of lead, and when the mixture becomes melted remove it from the fire and stir it constantly with a wooden spatula until it becomes cool. Lastly add the camphor dissolved in the tincture of benzoin and mix them.

This cerate, when made by the officinal process, is extremely liable to become rancid, and is perhaps the most difficult of all the cerates and ointments to keep unchanged; a portion made by the above process in August, 1866, was found, in May, 1867, to be perfectly sweet and soft, and unchanged in every respect. It was, however, at that time stirred up and exposed more thoroughly to the air, and at the present time, although it continues sweet and soft, it has become slightly discolored on the surface.

The cerate made by this process is of the same color as that made by the officinal process when recent, that is, not perfectly white; the former retains its color; the latter becomes whiter in proportion as it becomes rancid.

UNGUENTUM AQUÆ ROSÆ.

Take of ointment of rose water, 16 troyounces.

Tincture of benzoin, 4 fluidrachms.

Rub them together until they are thoroughly mixed. This is another ointment very liable to become rancid by age; a portion benzoinated by the above process in Feb., 1867, still continues perfectly sweet, although slightly granular on the surface.

Ointment of rose water, unless very carefully prepared, cannot be benzoinated by this process. The vessel in which the ointment is made should be kept in the water-bath until the mixture becomes fluid after adding the rose water; it should then be removed and the mixture stirred constantly and rapidly until it becomes cool. In making six or eight times the quantity of the formula of the Pharmacopœia, it will require from four to six hours faithful stirring.

The results of the experiments upon the other ointments and cerates are presented in the following table: ointment of red oxide of mercury having been experimented upon previously, and the results stated in a former paper is omitted here. Ointment of oxide of zinc was not experimented upon, as from long experi-

ence I have never known the benzoinated preparation to change, while it is well known that the officinal ointment very soon becomes rancid.

In the column of names the figures have reference to the different processes employed; 1 meaning the officinal; 2, that in which ointment of benzoïn (U. S. P.) was substituted for lard, and 3, that in which benzoinated lard was substituted. The first three preparations in the table are made by the formulas given above.

NAME.	WHEN MADE.	AGE	CONDITION IN AUGUST, 1867.
Cer. Plumb. Sub.	1866. Aug. 28 1867.	mos. 12	Sweet, discolored slightly on surface.
" Cetacei.	Feb. 20	6	Sweet.
Ung. Aq. Ros.	" 22	6	Sweet, slightly granular on surface.
Cer. Adipis 1	Apr. 1	4	Sweet and smooth.
" " 3	June 10	2	Sweet and smooth.
" Zinci Cer. 1	May 25	3	Smooth, slightly rancid.
" " 3	" 25	3	Sweet and smooth.
Ung. Acid. Tannic. 1	" 22	3	Spongy and granular, rancid.
" " " 2	" 22	3	Granular, rancid.
" " " 3	" 22	3	Sweet, slightly granular.
" Adipis 1	Apr. 1	4	Sweet and smooth.
" " 3	May 23	3	Sweet and smooth.
" Antim. 1	" 24	3	Spongy, rancid.
" " 3	" 24	3	Spongy, sweet.
" Hyd. Ammon. 1	" 24	3	Granular, slightly rancid, yellowish.
" " " 3	" 24	3	Sweet and smooth, white.
" " Nit. 1	Apr. 1	4	Color mottled green and yellow, sweet.
" " " 3	May 31	2	Smooth and even in color, sweet.
" Iodin. 1	" 20	3	Granular, no smell of iodine.
" " 3	" 15	3	Granular, slight smell of iodine.
" " Co. 3	" 20	3	Granular, slight smell of iodine.
" Plumb. Carb. 1	" 25	3	Sweet and smooth.
" " " 3	" 25	3	Sweet and smooth.
" Pot. Iod. 1	" 20	3	Yellow, granular, separated, smell of iodine.
" " 2	" 22	3	Yellow, granular, odor good.
" " 3	" 20	3	Sweet, color unchanged.
" Sulph. Iod. 1	" 22	3	Crust on surface, odor good.
" " 3	" 22	3	Crust on surface, odor good.

The experiments were interesting in the case of ointment of nitrate of mercury; that made with benzoinated lard remained unchanged in color, odor and consistence. In making the ointment of iodide of potassium with ointment of benzoïn (U. S. P.) the color changed rapidly to yellow during the process of making it.

In some of the cases mentioned in the table, sufficient time

has not elapsed to test them properly, and in the iodine preparations the experiments are not conclusive.

When it is considered that the exposure to air and temperature to which these cerates and ointments were subjected, was very much greater than they would ever be likely to receive at the hands of the apothecary, it will be conceded that the experiments were very satisfactory, and that the remark made in a former paper can be repeated here, that "there is no doubt that the benzoinated lard can be used in many of the ointments of the Pharmacopœia, without affecting their medicinal qualities."

BOSTON, August, 1867.

POISON BOTTLES.

BY AUG. THEOD. MOITH.

Among the many contrivances to prevent taking hold of a poison bottle instead of another, I found almost all inconvenient in the routine of the store.

The modo I hereby present gives all the security aimed at, without disturbing the symmetry of the store, or needing any recourse to poison cases, nooks or corners, or creating any apprehension in the mind of the observing customer.

Put a few ounces finely powdered asphaltum in a pint of benzole (not to be confounded with benzine), stopper well, shake occasionally for a few hours, and with a camel's-hair brush paint smoothly this varnish over the neck and shoulder of the bottle. It will dry in ten or fifteen minutes, and produces a fine black varnish, which can be washed.

It will be impossible, in taking hold of such a marked bottle, not to notice the difference, and oblige the dispenser to look once more at the label.

This varnish serves also as an excellent paint for the whole bottle or jar whose contents ought to be kept dark, and from transmitted light.

REPERCOLATION APPLIED TO THE CINCHONAS, AS A METHOD OF ECONOMIZING ALCOHOL IN THE EXHAUSTION OF DRUGS.

BY EDWARD R. SQUIBB, M. D.

In a recently published paper "On the Pharmacy of the Cinchonas," (see Amer. Journ. of Pharmacy, 1867, for July and September), the writer had occasion to refer to some details and practice in percolation which could not be well eliminated in that paper; and as the main object of the researches and observations was and is economy in the use of alcohol, and as this has been the subject of an annual communication to the Association from the writer for the past two years, and, finally, as the subject is still by no means exhausted, there seems to be reason for offering the following paper as a contribution to the accumulating experience upon which useful knowledge is commonly based. Observation and practice have led the writer to the conclusion that no scheme or plan of percolation is equally well adapted to any two substances, or even to the same substance in different conditions of fineness, dryness, &c., to say nothing of differences of quality, and upon this conclusion follows the circumstance that the best results of percolation are yet to be realized, and must be sought for in nice adjustments of the process to each individual substance through study and labor. These considerations establish so close a connection between this paper and that above referred to, that the writer asks those members who have any special interest in this subject to read the two papers in connection, and not to apply the results given to any other substance than the cinchonas until they are practically demonstrated to be more widely applicable.

Two previous papers upon the same subject, though by different titles, are in immediate connection with this, and deserve attention, if only to show how continued research upon any subject, however simple, may be useful, often by confirming observations, but still oftener by correcting and extending them. The first of this series of papers, all of which might be embraced under a general title such as "The Process of Percolation," is found in the volume of the Proceedings of this Association for

1865, page 201, entitled "Proposed Economy of Alcohol in Percolation." This paper embraces a set of careful experiments with yellow cinchona, which are especially related to this paper, and that recently published in the Amer. Journ. Pharm., and contains some conclusions which have been modified and corrected by farther observation. The second of these papers, entitled "Improved Process for Official Fluid Extract of Buchu," is found in the Volume of Proceedings for 1866, page 81, and contains a detail, as applied to buchu, of this process now called Repercolation. The present paper, therefore, is but a repetition and extension of the subject, as far as percolation is concerned, but it is hoped that the additions made, and the special application to the important cinchonas, may justify this repetition, even at the risk of tedious prolixity upon one subject. It is to be remembered, however, that education in any art is only attained through repetition; and that it is by this repetition that each year is supposed to add a little to the writer's stock of knowledge, which may be worth communicating on the subject.

In that form of the cafetière not uncommonly used in Spanish and Portuguese countries, the infusion is made to pass more than once, and as often as may be desired, through the coffee. Boullay, as early as 1833, not only applied this device to Pharmacy, but also, if the writer's memory be accurate, percolated fresh portions of solid substance with the percolate from previous portions; and it is curious that when, a little later, M. Emile Mouchon, of Lyons, divested the process of much of its complexity, and first adopted the common funnel as a percolator,* that investigations in this direction seem to have been almost abandoned, possibly from the bad results obtained from returning a part of the percolate to the top of the substance percolated.

This plan of percolating successive portions of the same substance with the percolate obtained from previous portions, or with any part of such percolate, the writer calls Repercolation. This word is not unobjectionable in this application, since its

* This great improvement as well as simplification is often attributed to our fellow member, Mr. I. J. Graham, who, however, has never claimed it in any way as originating with him, though he strongly recommended its use.

true etymology leads as well to the meaning that the same portion of substance is percolated again and again, as to the meaning that the same percolate is used again and again upon different and fresh portions of the same substance, the latter meaning only being accepted or intended. It is, however, the best word that the writer's deficient scholarship can supply, and is merely suggested as a not inconvenient term for distinguishing by one word a process which is something more than simple percolation, which has probably been long used in a private way, and which will sooner or later come into common use without displacing the word percolation from its primary signification and use. The word doubling is convenient and applicable in some of its well-established meanings to this duplication and reduplication of strength in the percolate, but a little consideration will point out several objections to it.

A typical process of Repercolation, as well adapted to the cinchonas, may be given as follows, leaving useful practical modifications, as far as yet observed, to be considered afterward:—

Take of Cinchona, either yellow or red, in very fine powder, forty-eight troy-ounces.

Alcohol, ten pints.

Water, a sufficient quantity.

Separate the cinchona into three equal parts of sixteen troy-ounces each. Mix one part very thoroughly with two pints of the alcohol by stirring them together, allow the mixture to stand in a covered vessel for half an hour, transfer it to a ten-inch glass funnel arranged for percolation, return the first two or three fluidounces of percolate to the funnel, and then pour on first five pints of the alcohol, in portions of one pint each, waiting after each addition until the surface is no longer covered, and after the alcohol twenty fluidounces of water. Percolate to six and a half pints, keeping the percolate separate as it comes off, in portions, the first portion of two pints and the remainder in portions of a pint each, except the last one, which will be a half pint.

Mix the second part of the cinchona with the first two pints of percolate from the first part, and manage it precisely as directed

for the first part, using the percolate in successive portions in the place of alcohol, until the last portion disappears from off the surface of the cinchona in the funnel. Then pour on top first a pint of the alcohol, and when this has disappeared twenty fluid-ounces of water. Percolate to seven and a half pints, separating the percolate into successive portions, as directed for the first part of the cinchona.

Mix the third and last part of the cinchona with the first two parts of percolate from the second part, and manage it precisely in the way directed for the second part, except that the remaining two pints of the alcohol is to be poured on top after the percolate, and before the water, and that the percolation is to be continued till nine and a half pints of percolate is obtained, or until water appears in the percolate.

Recover the alcohol from the percolate by distillation, for future use with cinchona, and convert the extract into the form desired for use.

Cinchona barks for percolation with alcohol should be in the finest powder possible, and perfectly dry. Sixteen troyounces, or 7680 grains, forms a convenient proportion to an ordinary ten or ten and a half inch funnel, and the exhaustion is less economically effected where smaller quantities are taken. When this quantity is mixed with the two pints of the alcohol it should be done in a vessel of not less than half a gallon capacity, which can be closely covered by a piece of oiled cloth, or other close cover. The mixing is conveniently effected by means of a wooden spatula, and it is easy to see when the mixture is uniform and free from lumps. With the proportions directed the mixture is at first thin and mobile, and might be poured out of the vessel pretty clean; but after standing the half hour, as directed, it becomes much thicker by absorption of the liquid by the powder, and though it still may be poured, this operation leaves a large portion adhering to the vessel, to be transferred by the end of the spatula. The details of the arrangement of a funnel for successful percolation have been so lately published in the paper on the Pharmacy of the Cinchonas, that, to avoid prolixity, the writer refers to that paper for this and other details not repeated here. After the magma is transferred to the

funnel, four to six fluidounces of percolate might drain off from it, without the addition of any menstruum on top, but this is to be avoided, because the magma shrinks and becomes impacted as it loses the liquid portions, and is thus more difficult to percolate. The first two or three fluidounces of percolate which passes is always weak and occasionally cloudy, and for these reasons it is directed that this portion should be returned to the funnel, and the first pint of either alcohol or percolate is to be immediately added to it, to prevent the shrinking and impaction. On the first part of the powder, when alcohol is used, it is not important how it is poured on, so that the surface be kept covered, but when the percolate comes to be used to supply the funnel, one pint should be allowed to sink into the powder before the next is poured on, because these are successively weaker and better adapted to the regular progress of exhaustion. The surface should not, however, be allowed to be long uncovered between the additions, or the percolation will cease, and some shrinking take place. This will nevertheless occasionally occur in the night, and then the surface should be gently pressed down all over, in order to close up any cracks that may have occurred during the contraction, before the supply of liquid is renewed. This may be done without removing the paper from the surface. The percolate, from first to last, should be perfectly transparent, and should pass at the average rate of about a pint every twelve hours. In the first percolation it is most rapid; slower in the second, and still slower in the third, and in experiments with a fourth percolation it was so extremely slow that the first pint required 37 hours to pass, the second pint 26 hours, and the third pint 16½ hours. The first part of each percolation is slowest, the rate increasing as the exhaustion progresses. The slowness of this process, so necessary to complete and uniform exhaustion, involves great loss of alcohol by evaporation, unless the point of the funnel passes well into the flask, and the funnel be kept closely covered by a piece of india-rubber cloth or oiled cloth, or oiled silk, and a plate. Two accidents are liable to occur here, which deserve notice, as either may spoil a percolation, or even an entire group or process. In emptying the funnels after one exhaustion to prepare for the next percolation, if the disk of

blanket or the cork be replaced in the funnel wet, or even very damp, either with water or with weak percolate from the last percolation, which contained much water, the percolate of the next portion will be muddy from the first, and will often stop altogether after the first few ounces. Again, if the tube of the funnel fits closely on the neck of the flask, as it should, and the point does not project into the wider part of the flask below, the interstice between the point and the neck is at any time and all times liable to be closed by the dropping liquid, so as to prevent the escape of air, and then the percolate, instead of running down into the flask, follows up the interstice between the tube of the funnel and the neck of the flask, and flows over on to the table, and it is curious that, this condition once started, not a drop appears to go down into the flask. After the last pint of the alcohol is poured in and disappeared below the surface, twenty fluidounces of water is poured on to displace the last portions of alcohol. The powder at the end of each percolation holds about eighteen fluidounces of the alcoholic weak percolate after it has ceased to drop, and by the use of this water from ten fluidounces to a pint of this may be pushed through and saved free from water. The percolation must, however, be well watched toward the close, to avoid the water. When this appears the percolate becomes cloudy, much darker in color, and causes a yellow precipitate in the alcoholic portion which has passed, so that it is very easily seen and avoided. The alcoholic percolate at the close of each percolation is very bitter, and from red cinchona is as deep in color as port wine. From yellow cinchona it is nearly as dark as brown sherry. Both contain alkaloids, though not in large proportion. If loss by evaporation be carefully guarded against, full six and a half pints of alcoholic percolate may be obtained from the seven pints of alcohol put upon the first part, even in warm weather; and a similar proportion from the other two parts, making the final percolate nine and a half pints. In obtaining this measure from the ten pints of alcohol used, about half a pint from the last percolation will contain some water, but not enough to materially interfere with the results. The copious yellow precipitate produced by water in these weak percolates has not been examined. The percolation

should always be continued until the water makes its appearance, and should be stopped at this point, whether the prescribed measure may have been received or not. The first two pints of percolate from the second and third percolations is very dense; from the third almost syrupy, and in the experiments carried to the fourth percolation the first pint was quite syrupy. This density and want of fluidity in the percolate is the natural limitation of the process of repercolation, by its rendering the successive percolations more tedious and more wasteful by evaporation. The first pint of the first percolation is usually received in about ten hours. The first pint from the second percolation in about sixteen hours; that from the third in twenty-four hours, and from the fourth in thirty-seven hours. The last pint in each does not vary much, and is obtained usually in from eight to ten hours. It is a curious circumstance, not without interest, that although the percolates from red cinchona appear more dense and more syrupy, as well as so much darker in color, they are really lighter and yield less extract throughout; and this minus proportion is just about in the ratio of the impure alkaloïds, the red containing 3.4 per cent., the yellow over 4 per cent.

The alcohol when distilled off from these final percolates is ready for use with cinchonas again, the loss in the process being from 20 to 30 per cent., according to the efficiency of the distilling apparatus and the care and skill used. That recovered from red cinchona always has a brown tint; from the yellow, it is very nearly if not quite colorless. The odor is very different in the two.

The following table well illustrates the process of repercolation as applied to the cinchonas.

The measurings and weighings were all made in one accurately marked pint flask, and with one scale and weights, at temperatures between 76° and 80° F., or 24° and 27° C. The powders and alcohol were each taken from one uniform common stock. A pint of distilled water at 79° F., = 26° C., in the measuring flask used weighed 7281 grains, or 11 grains less than at the normal temperature. The same measure of the alcohol used weighed, under similar conditions, 6034 grains, instead of

TABLE OF REPERCOLATIONS.

	1st Pint.		2d Pint.		3d Pint.		4th Pint.		5th Pint.		6th Pint.		7th Pint.		8th Pint.		Sum of the Differences.	Extract.
	Weight in grains.	Difference.	Weight in grains.	Difference.	Weight in grains.	Difference.	Weight in grains.	Difference.	Weight in grains.	Difference.	Weight in grains.	Difference.	Weight in grains.	Difference.	Weight in grains.	Difference.		
RED CINCHONA.																		
1st portion	6318	347	6292	258	6178	144	6126	92	6125	91	6113	79					1011	1585
2d "	6517	483	6499	465	6260	226	6186	152	6160	126	6139	105	6097	63			1620	3160
3d "	6705	671	6644	610	6380	346	6255	221	6208	174	6174	140	6130	96	6104	70	2328	4755
4th "	6885	851	6754	720	6476	442	6323	289	6245	211	6218	184	6157	123	6134	100	2920	6340
YELLOW CINCHONA.																		
1st portion	6385	351	6310	276	6212	178	6162	128	6102	68	6120	86					1087	1649
2d "	6602	568	6530	496	6330	296	6272	238	6187	153	6141	107					1856	3295
3d "	6784	750	6666	632	6499	465	6308	274	6240	206	6195	161	6120	86			2574	4947
4th "	6953	919	6810	806	6584	550	6439	405	6307	273	6223	189	6165	131	6135	101	3374	6596

6080 grains as it would have done if water and alcohol expanded equally from increased temperature. The first column of the table gives the variety of the cinchona, and the different portions of 16 troyounces each in the order in which they were percolated. The next eight divisions, of two columns each, are appropriated to the successive pints of percolate from each portion of the powder. The first column of each pair is the weight in grains of a pint of percolate, and the second column, marked "Difference," is the difference between the weight of this pint of the percolate and a pint of the alcohol used, and the ratio of these differences, taken both vertically and horizontally, is an interesting feature of the table. The next to the last column is the sum of each line of these differences, and the final column gives an approximation to the total anhydrous extract from each line of percolates. This is obtained by calculation back from the total extract actually yielded by the final distillation and evaporation, pushed to as near perfect dryness as possible. The extract of pilular consistence given by the red cinchona was 16 troyounces (from the 64 troyounces of powder), but of very dry extract, called anhydrous in this column, it was only about $13\frac{1}{2}$ troyounces. This discrepancy cannot be explained satisfactorily, as there can hardly be $2\frac{1}{2}$ troyounces of water and alcohol lost between the two conditions.

The still imperfect and limited observations upon the process of repercolation, as applied on a larger scale within the past year, lead the writer to the conclusion that when a fluid extract is to be made without the use of heat it is good practice, if not the best, to pack five-twelfths of the powder in the first percolator, four-twelfths in the second, and the remaining three-twelfths in the third, and then to reserve eight-twelfths of the prescribed percolate from the second percolator, and four-twelfths from the third. With some substances, however, the whole quantity is best reserved from the last percolator, and with others two-thirds, the weak percolate which passes after the reserved portion being always saved for the next series. In starting anew to make a preparation without heat by repercolation, that is, having no weak percolate from a previous series to commence with, about two-twelfths less of finished percolate should be reserved.

Brooklyn, N. Y. August 16, 1867.

"MATA."

BY E. S. WAYNE.

This herb, called "mata" by the Mexicans, is in common use in New Mexico, as an addition to tobacco in smoking. A small quantity of it is rubbed to a coarse powder in the palm of the hand, and then mixed with the tobacco, to which, in burning, it imparts a very agreeable odor, and at the same time prevents or corrects the disagreeable odor of stale tobacco smoke upon the clothing, and in apartments.

It was introduced into use here by Major McCrea, U. S. A., and since has become quite in demand by smokers (those who use the pipe). I have had much difficulty in obtaining any quantity of the article, and then only at an enormous cost. I was fortunate enough this season to obtain a quantity of the seed of the plant, and have been successful in growing a crop, specimens of which are herewith sent, also some of the seed. The plant is rather insignificant in size; the inflorescence is very minute, white, corolla entire, and finely cleft. I have not been able to make out its natural order, or to find a description of it in any work at my disposal. It is not described in the Pacific Railroad Survey (in the botanical section of that Government report).* The odor, when burnt in a pipe, is similar to that of the tonqua bean, and I presume it owes the same to the presence of coumarin in the plant.

GIZZARD OF THE SOUTH AMERICAN OSTRICH.

BY E. S. WAYNE.

The inner coat of the gizzard of the ostrich is used in Buenos Ayres in powder, as a remedy for dyspepsia. The specimen

* At the request of Professor Wayne I have examined the specimens sent. The seeds consisted of the empty involucre and the achene (with the pappus much broken) of a *Eupatorium*. The dried plant was without flowers, but bears a striking resemblance to some of our Northern species of this genus, and corresponds closely with the description of *Eupatorium incarnatum*, Walter. This species is indigenous to Texas, but is found as far East as Florida and Georgia.

J. M. MAIBCH.

herewith sent was presented to me by Mr. T. B. Coffin, who has been for some time past a resident of Buenos Ayres, now of New York, and a member of the firm of C. E. Griswold & Co., manufacturers of feather dusters, and importers of ostrich feathers. The specimen was handed to me with the request that I would make some experiments in relation to its value as a source of pepsin; also as to its value in substance or powder, compared with pepsin, as it was supposed, from the popular belief in the fabulous digestive powers of the ostrich, that a pepsin, or similar substance superior to pepsin, from the stomach of the calf, pig, &c., might be obtained from it. The limited time I have had for experiment has prevented my making any further report at present. I am making comparative tests, the results of which will be given at some future time.

QUICKSILVER IN NORTH CAROLINA.

BY E. S. WAYNE.

The specimen of quicksilver ore was handed to me for examination by J. S. Bonham, of Concord, Tenn. The locality in which it is found is in Macon county, Tenn., near the dividing ridge that separates the waters flowing into the Atlantic and Gulf of Mexico, and forty miles from Wall Hollow, S. C., and thirty miles from the line of railroad from Cincinnati to South Carolina. The specimen is a talcose rock, containing quicksilver in the metallic state. From the description given to me, there is an immense vein of the material. By analysis I found that it yielded $7\frac{1}{2}$ per cent. quicksilver (150 pounds to the ton). From the appearance of the specimen when handed to me, and the statement made by the party that it contained quicksilver, I thought that it was merely a conjecture upon his part, but analysis proved the correctness of the statement, both by wet and dry assay. A portion of the ore, placed in a glass tube and heated, will quickly show condensed globules of mercury, and all that would be required to separate the metal from gangue, is simply retorting it.

CRYOLITE AND ITS PRODUCTS.

BY EVAN T. ELLIS.

This remarkable mineral, which, as you will observe, is partially transparent, of a vitreous lustre, and brittle texture, is a fluoride of sodium and aluminum, containing—

13	per cent.	aluminum,
34	“	sodium,
53	“	fluorine.

100

It is found in an immense deposit in Greenland, at Iviktout, at the head of Arksut Bay, near Cape Farewell. The first discovery was made by one of the missionaries, who carried a specimen with him to Copenhagen. Its true composition was determined by Vanquelin.

There is a bed eighty feet thick, and three hundred feet long, at the above-mentioned place.

It is frequently associated with the salts of metals, and beautiful crystals of galena, or sulphide of lead, chalybite, or brown spathic carbonate of iron, resembling spar in lustre, copper pyrites with silver, iron pyrites, &c., are found therein, arranged in masses segregated from the white, transparent, ice-like cryolite.

It remained for the “Pennsylvania Salt Company” to introduce to our country this valuable material. This energetic Company, whose works are in western Pennsylvania, has secured the privilege of using a large part of all that is mined, and has, within two years past, imported into Philadelphia thirteen cargoes, or nine thousand tons, which have been sent to their works for manufacture.* The greater portion of this has been used for their patent Saponifier. They are now devoting their attention to the preparation of caustic soda, carbonates, and other salts of soda, sulphate of alumina, &c.

Soda is obtained from cryolite by simply mixing with lime, and subjecting to heat. The fluorine combines with the calcium,

* They will import this year (1867) eight thousand tons.

forming fluoride of calcium; while the remaining metals absorb oxygen from the air, and become alumina and soda. Carbonic acid is then passed through the solution, forming, with the sodium, a carbonate of soda, which remains suspended, while the alumina, being insoluble, is deposited at the bottom of the vessel. The carbonate of soda is deprived of its acid by means of lime in the usual manner, and thus rendered caustic, and fitted for the use of the soap-maker.

One hundred pounds of cryolite yield—

44	lbs. dry caustic soda,
or 75	“ “ carb. “
or 203	“ crystal carb. “
or 119½	“ bicarb. “
and 24	“ alumina.

The sulphate of alumina contains 2.82 of sulphuric acid to 1 equivalent of alumina, therefore this is more than a neutral salt (3. being neutral), which is very desirable for manufacturers of paper, calico printers, &c.* It is also entirely free from iron, another very important characteristic.

There is another very important use to which cryolite can be applied. By a fusion of one part of cryolite with from two to four of pure silex, a beautiful glass is formed, susceptible of mould and polish, and capable of being manufactured into an endless variety of useful and ornamental articles, and probably many utensils for chemical and pharmaceutical use will be made of it. A company has been operating in Philadelphia for some time past, on an experimental scale, entitled the “Hot Cast Porcelain Company.” The results have been so satisfactory that they have now taken a large establishment, and will be prepared to carry on the manufacture quite extensively. The cost is, at present, from ten to twenty per cent. higher than ordinary flint glass. The ware seems to be stronger than glass.

* The English often contains as high as 3.27 of acid.

ON HYOSCYAMIA.

BY ARTHUR WADGYMAR, M. D.

At the thirteenth annual meeting of the American Pharmaceutical Association, held in Boston, Mass., September, 1865, Query 27 was referred to me:—

"Is Hyoscyamia a permanent principle like Atropia? which is the best part of the plant for its extraction? and what impediment exists to its manufacture as a pharmaceutical preparation for medical use?"

I should have answered this reference at the fourteenth annual meeting, last year, but, being in bad health, it was an impossibility for me to do so. I will therefore try to answer at this fifteenth annual meeting.

The above query is a combination of three very distinct and important questions, and I will answer each one for itself.

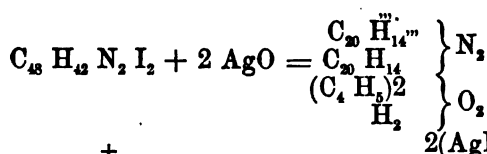
Question 1st. Is Hyoscyamia a permanent principle like atropia?

This I have to affirm.

Hyoscyamia appears in colorless, transparent, silky needles, of an acrid, burning taste, inodorous; it is exceedingly poisonous, nearly insoluble in water, but it dissolves readily in alcohol and ether. At a gentle heat it is volatilized and sublimed (unchanged) in beautiful long white silky needles, $1\frac{1}{2}$ —2 lines long. It neutralizes acids completely. The salts are crystallizable, but all except the sulphate are deliquescent. They are all soluble in water, of an acrid, disagreeable taste, and very poisonous.

Potassa, soda and the simple carbonates of the alkalies decompose them completely in the heated watery solution, with disengagement of ammonia.

The chemical constituents of Hy^+ are $\text{C}_{40} \text{H}_{32} \text{N}_2$ (?). I came to this conclusion by different chemical analyses, and by the stoichiometrical calculation, finding it a *ternary diamine-base*; heated with *iodide of ethyle*, it unites to iodide of diethylhyoscyamia $\text{C}_{40} \text{H}_{32} \text{N}_2 + 2\text{C}_4 \text{H}_5 \text{I} = \text{C}_{48} \text{H}_{42} \text{N}_2 \text{I}_2$. Hydrate of potassa does not decompose it. If the iodine is separated from the base with moist oxide of silver, then an alkaline, not volatile ammonia-base is left, according to the equation:—



Hyoscyamia (Hy)⁺ refracts the light, especially the blue light, powerfully under the polarizing prism; indeed it gives to the spectator an astonishing effect by its beautiful refraction, when seen through a magnifying power of 350 diameters. These crystals present the form of four-sided prisms.

Question 2d. Which is the best part of the plant for its extraction? Answer. The seeds.

I tried first the fresh herb. Through the kindness of Mr. Eugene L. Massot, of St. Louis, Mo., I received of Messrs. Bullock & Crenshaw, of Philadelphia, a pound of fresh folia hyoscyami or henbane.

This pound of leaves were dried and powdered moderately fine, then digested for 24 hours with 4 pounds of diluted alcohol of 60 per cent., and a half ounce of diluted sulphuric acid; having it introduced in a glass percolator, and the liquid obtained filtered, hot alcohol (95 per cent.) was introduced until 5 pounds of liquid was obtained. I then put this liquid in a glass retort, and distilled 36 ounces alcohol off. In order to remove the coloring matter, the remaining liquid was mixed with as much acetic acid, No. 8, as to render it strongly acid, then put aside for 12 hours. The fluid was then strained from the solid parts, the latter squeezed and washed with water strongly acidulated with acetic acid, and the whole evaporated on the water-bath to a syrupy consistence. Boil the residue first with pure alcohol, containing some sulphuric acid (1 to 10).

Mix the solution with milk of lime until a feeble alkaline reaction is produced; evaporate to the consistence of syrup, and allow it to stand for 48 hours; then dilute it with water and filter the fluid from the precipitate formed; wash the latter with diluted alcohol, and decolorize the liquid with animal charcoal. Then filter the liquid again and evaporate by a gentle heat (60°) in a water-bath to perfect dryness. Macerate the residue with sulphuric ether mixed with animal charcoal; again filter, and set the filtrate aside to evaporate spontaneously. The product was 11 grains.

The seeds treated by the same process yielded 41 grains of pure hyoscyamia to a pound.

The impediments arising in the manufacture of pure hyoscyamia in large quantities would be—

1st. The difficulty in procuring fresh seeds.

2d. The tedious process of preparing the alkaloid in a pure state.

3d. The small quantity of it existing in the crude drug; consequently the high price would make it unattainable by physicians for use in every-day practice.

But as it is a matter of great importance to the practitioner to have a uniform preparation of the active principle of such a valuable remedy, I would recommend a good concentrated tincture of the henbane seed (*Sem. hyoscyami*), in proportion to 1 pound of seed, extracted by enough alcohol to obtain 12 ounces of tincture, the residue extracted again with alcohol to exhaustion, and then concentrated by evaporation to 4 oz., and mixed to the first 12 oz. of tincture. This is as good, perhaps better, and more reliable a preparation than the alkaloid.

This pint of tincture represents 41 grs. hyoscyamia, or $2\frac{1}{2}$ grs. to a fluidounce, $\frac{3}{8}$ gr. per drachm, or $\frac{1}{8}$ gr. to 20 minims of tincture.

Recapitulation and Remarks.—Hyoscyamia (Hy^+) $\text{C}_{40} \text{H}_{32} \text{N}_2$ (?) appears in the form of beautiful, long, white needles, when pure; in the impure state, as a dull, greenish powder, of an acrid taste, inodorous. It is nearly insoluble in cold water, but dissolves in alcohol and ether completely; it fuses and sublimes when heated by a gentle heat, but undergoes decomposition by a heat of 280° Fahr. under evolution of ammonia; it neutralizes acids completely, and is exceedingly poisonous.

Potassa, soda, and the carbonates of the alkalies decompose it completely, under evolution of ammonia. Chloride of mercury, strong chlorine water and concentrated nitric acid decompose it and form chloride of ammonium and nitrate of ammonia. Hy^+ may be separated from the impurities by means of ether or chloroform, since it is readily soluble in these menstrua, leaving extractive matter, albumen and starch behind.

ON THE USE OF OXALATE OF IRON IN MEDICINE.

BY G. G. C. SIMMS.

It occurred to me, after having decided to attend this meeting, that I might present something here worthy the notice of this learned body. I was aware that a chemical, in daily use in the District of Columbia, and with which the pharmacutists and physicians of Washington are as familiar as with any other article of the *Materia Medica*, was not to be found in any of our text books or treatises on chemistry or medicine.

I had thought that, in presenting here a sample of Oxalate of Iron, I would be introducing something new to the profession, as well as something which would redound to the credit of one of our able, but over-modest chemists.

I soon learned, though, that this article had already been brought to the notice of this Association some years ago, but for some reason, unknown to me, little or no notice was taken of it; and, a few months ago, an English pharmacist, it seems, claimed the honor of its discovery, and made known its valuable properties as a medicine.

I deem it, therefore, eminently proper that the claim of Dr. Schaeffer, for first using Oxalate of Iron and making known its invaluable medicinal properties, as well as other useful purposes to which it may be put, should be heard in this Association;

First, That it may be brought prominently before the profession, medical and chemical;

Secondly, That the question as to its paternity may be settled forever.

Having learned, several years ago, that Dr. Schaeffer, Professor of Chemistry in the "National Medical College of the District of Columbia," introduced the article under notice to his medical friends as possessing peculiar and very desirable properties in the treatment of disease, I addressed a note to him, requesting that he would give me a history of its introduction into medicine, its medical properties, &c., &c.

I desire, for the information of the members of this Association and for that of the medical profession at large, both of the Eastern and Western Hemispheres, to read Dr. Schaeffer's let-

ter to me, in reply to my note. It will, I am sure, be found interesting to all who may read or hear it read.

I can safely say that Oxalate of Iron has been constantly used as a medicine in the District of Columbia during the last ten years.

Of its medical and chemical properties I will let Dr. Schaeffer speak. The formula for its preparation may be found in a little book, entitled "Non-official Formulæ in local use in the District of Columbia."

I would further observe, in addition to what the Doctor says, that pure glycerine seems to me to be the best vehicle in which to administer it.

Washington, D. C., Sept. 5th, 1867.

DEAR SIR:—In answer to your inquiry, I send the following particulars in regard to the introduction of the Oxalate of Iron into medical practice. In the month of May, 1854, I had been using the "Pulvis ferri." I had found certain objections to it which I thought might be obviated by the use of a pure oxide of iron for reduction. In looking about for such a pure oxide, easily and cheaply prepared, I found no one answering all ends so well as that produced by the process of Vogel. This consisted in precipitating a solution of ordinary proto-sulphate of iron by oxalic acid. The filtered solutions exclude all insoluble matter, and the precipitated oxalate is nearly insoluble in the remaining free sulphuric acid. It needs but sufficient washing and subsequent drying to obtain the oxalate in a state of purity and of constant composition. This salt gently heated, with exposure to the air, takes fire, or may be kindled, and then continues to burn until the whole becomes converted into impalpable peroxide of iron. This cheap, rapid and perfect method of obtaining a perfect oxide of iron, free from all grit and eminently fitted for all the finer polishing purposes, had led to the use of this article for polishing the finest optical glasses in the most renowned European establishments. It may be remarked, by the way, that by heating the product to a higher temperature, a much harder substance may be obtained, useful rather for grinding than for polishing purposes. By adding salts of alumina, chromium and other similar salts to the iron solution, we may obtain in the

final result—using sufficient heat—products nearly, if not quite, equal to emery, and of extraordinary fineness.

Having obtained the oxalate and examined its properties, it at once occurred to me that this salt itself would be an excellent form, by means of which, to introduce iron into the system. It was a proto-salt, unalterable, cheaply made and quite pure.

The soluble proto-salts of iron are too astringent and liable to rapid alteration. Even the less soluble salts undergo the change so quickly that they must be protected by some extraneous substance, intermixed or coating their preparations.

Struck with these obvious advantages, I commenced to use the salt myself. Being so very insoluble, I placed the dry powder upon the tongue and washed it down with water, and I believe that, in the extended use which has since been made of it, this is still the favorite mode of administration. I soon found that, in doses of two to three grains thrice a day, all the tonic effects of iron were more rapidly produced upon the system, than by any ordinary dose of the iron preparation which I had used. It was quite easy, by increasing the quantity, to stimulate the capillary circulation to the extent of producing an itching over the whole surface of the body. Instead of being astringent, with inactivity of the bowels originating from want of tone, it soon produced healthy and natural passages. The prolonged use of this oxalate will, however, give rise to a peculiar kind of astringent action which should be taken into consideration.

Having thus satisfied myself that the Oxalate of Iron would prove a useful article of the *Materia Medica*, it was communicated to some of my medical friends, and ever since then it has been in constant use in this city.

Several years ago a gentleman of this place requested an account of this article to be read before the National Pharmaceutical Convention, meeting that year in Philadelphia. My friend, Dr. Craig, who had become interested in the matter, was asked by me to prepare this notice, which I did not wish to make myself. The paper, it seems, was never read, but the preparation excited some attention. In the March number of the *American Journal of Pharmacy*, for this year, there is an article, "Oxalate of Iron—a

New Tonic," in which this same substance is noticed, as prepared in a far less economical and perfect way. A note by the editor gives credit to Dr. Craig for having "recommended it as far back as 1858." This mistake has no doubt arisen from the facts stated above. As the article is now in common use here, and as its merits have been fully recognized by medical men, it seems but an act of justice that I, who first prepared, used, and introduced it to the notice of medical men, should have due credit given me. Since the first use of the Oxalate of Iron it has been ascertained that, in case of excessive irritability, when ordinary preparations of iron could not be tolerated, the oxalate was taken with the greatest benefit.

The very beautiful color of the oxalate iron would at once suggest its use as a pigment. It does not seem capable of mixing well with gum and similar vehicles, making a somewhat curdy result, but such as it is I have a specimen which, for thirteen years, has kept quite unchanged. With oil it is so transparent as to be utterly useless.

From two analyses I have found that the salt, prepared as above described, is without water of crystallization. This is a question which can be easily determined by experiments. The powder is uniformly crystalline, and, from its unalterability, I consider it one of the best means of obtaining a given quantity of a proto-salt of iron for purposes of chemical analyses.

Respectfully yours,

GEO. O. SCHAEFFER.

To Mr. G. G. C. Simms.

LIST OF SOCIETIES, LIBRARIES, JOURNALS AND INDIVIDUALS,

To whom complimentary copies of the Proceedings of this Association are forwarded.

Maine Pharmaceutical Association,	Portland,	Maine.
Bowdoin College,	Brunswick,	"
Dartmouth College,	Hanover,	New Hampshire.
Amherst "	Amherst,	Massachusetts.
Harvard University,	Cambridge,	"
Massachusetts College of Pharmacy,	Boston,	"
" State Library,	"	"
City Library,	"	"
" Hospital,	"	"
Boston Medical and Surgical Journal,	"	"
" Athenæum,	"	"
University of Vermont,	Burlington,	Vermont.
Brown University,	Providence,	Rhode Island.
Yale College,	New Haven,	Connecticut.
College of Pharmacy of the City of N. Y.,	New York,	New York.
American Druggists' Circular,	"	"
New York Medical Journal,	"	"
Astor Library,	"	"
Mercantile Library,	"	"
Long Island Historical Society,	Brooklyn,	"
Philadelphia College of Pharmacy,	Philadelphia,	Pennsylvania.
American Journal of Pharmacy,	"	"
College of Physicians,	"	"
Pennsylvania Hospital,	"	"
Academy of Natural Sciences,	"	"
Franklin Institute,	"	"
American Philosophical Society,	"	"
Philadelphia Library,	"	"
Mercantile Library,	"	"
American Journal of Medical Sciences,	"	"
Medical and Surgical Reporter,	"	"
Dental Cosmos,	"	"
Linnæan Society,	Lancaster,	"

412 SOCIETIES TO WHOM PROCEEDINGS ARE FORWARDED.

Maryland College of Pharmacy,	Baltimore,	Maryland.
University of Maryland,	"	"
Smithsonian Institution,	Washington,	Dist. Columbia.
Surgeon-General U. S. Army,	"	"
Pharmaceutical Association of the Dis-	"	"
trict of Columbia,	"	"
Richmond Medical Journal,	Richmond,	Virginia.
Nashville Journal of Medicine & Surgery,	Nashville,	Tennessee.
University of Louisiana,	New Orleans,	Louisiana.
Cincinnati College of Pharmacy,	Cincinnati,	Ohio.
Cincinnati Academy of Medicine,	"	"
Cincinnati Lancet and Observer,	"	"
Dr. Langdon, Longview Lunatic Asylum,	"	"
Wayne Medical Society,	Richmond,	Indiana.
Western Journal of Medicine,	Indianapolis,	"
Detroit Review of Medicine & Pharmacy,	Detroit,	Michigan.
University of Michigan,	Ann Arbor,	"
Chicago College of Pharmacy,	Chicago,	Illinois.
" Medical Examiner,	"	"
" " Journal,	"	"
St. Louis College of Pharmacy,	St. Louis,	Missouri.
" Medical and Surgical Journal,	"	"
" Medical Reporter,	"	"
" Academy of Science,	"	"
" Mercantile Library,	"	"
" Public School Library,	"	"
Leavenworth Medical Herald,	Leavenworth,	Kansas.
Pacific Medical and Surgical Journal,	San Francisco,	California.
Montreal Chemists' Association,	Montreal,	Canada.
Sociedad de farmacia argentina, Prof. Carlos Murray,	Buenos Ayres.	
British Pharmaceutical Conference, Dr. J. Attfield,	London.	
Pharmaceutical Journal and Transactions,	London.	
Chemical News,	London.	
Chemist and Druggist,	London.	
London Lancet,	London.	
British Museum,	London.	
Liverpool Chemists' Association.		
Pharmaceutical Society at Edinburgh.		
Academie Royale des Sciences de Belgique,	Bruxelles.	
Société de Pharmacie de Bruxelles.		
Journal de Pharmacie d'Anvers.		
Société de Pharmacie, Mr. Henri Buignet, Secrétaire,	Paris.	
Academie des Sciences,	Paris.	
Journal de Pharmacie et de Chimie,	Paris.	
Répertoire de Pharmacie,	Paris.	

Schweizer Apotheker Verein, Mr. R. Lindt, President, Bern.
 Dr. F. A. Flückiger, Bern.
 Schweizerische Wochenschrift für Pharmacie, Mr. Gruner, Bern.
 Schweizerisches Polytechnikum, Zürich.
 Oesterreichischer Apotheker Verein, Wien.
 Oesterreichische Zeitschrift für Pharmacie, Wien.
 K. K. Gesellschaft der Aertze, Dr. Hauke, Secretary, Wien.
 K. K. Akademie der Wissenschaften, Wien.
 K. Bayer, " " München.
 Neues Repertorium für Pharmacie, Prof. Buchner, München.
 Vierteljahresschrift " " Prof. Wittstein, München.
 Jahresbericht für Pharmacognosie, Pharmacie und Toxicologie, Prof. Dr. Wiggers, Göttingen.
 Zeitschrift für Chemie und Pharmacie, Göttingen.
 Neues Jahrbuch für Pharmacie, Dr. Vorwerk, Speyer.
 Archiv der Pharmacie, Prof. D. H. Ludwig, Jena.
 Chemisches Centralblatt, Dr. Knop, Leipzig.
 Annalen der Chemie und Pharmacie, Prof. Dr. Wöhler, Göttingen.
 Jahresbericht für Chemie, &c., Prof. Dr. H. Will, Giessen.
 K. Akademie der Wissenschaften, Göttingen.
 " " Berlin.
 Pharmaceutische Central-Halle, Dr. H. Hager, Berlin.
 Pharmaceutische Gesellschaft in St. Petersburg, Dr. A. Casselmann, St. Petersburg.
 Pharmaceutische Zeitschrift für Russland, St. Petersburg.

LIST OF PUBLICATIONS RECEIVED

For the American Pharmaceutical Association.

Societies and Editors are respectfully requested to forward publications to the Permanent Secretary of the American Pharmaceutical Association,

JOHN M. MAISCH.
 1807 Ridge Avenue, Philadelphia, State of Pennsylvania.

American Journal of Medical Sciences, Philadelphia.
 Dental Cosmos, Philadelphia.
 Proceedings of the British Pharmaceutical Conference, 1866.
 Pharmaceutical Journal and Transactions, London.
 Chemical News, London.
 Chemist and Druggist, London.
 Pharmaceutical Ethics, by Mr. Joseph Ince.
 Exhibition of objects relating to Pharmacy, held in Nottingham, 1866.
 On the Assay of Coal, &c., by John Attfield, Ph. D., F. C. S.

- Bulletin de la Société de Pharmacie de Bruxelles.
Neues Jahrbuch für Pharmacie, Speyer.
Buchner's Neues Repertorium für Pharmacie, München.
Wittstein's Vierteljahresschrift, München.
Jahresbericht über die Fortschritte der Pharmacognosie, Pharmacie, und
Toxicologie, Göttingen.
Zeitschrift des oesterreichischen Apotheker Vereines, Wien.
Verhandlungen der Kaiserl. Akademie der Wissenschaften in Wien.
Mathematisch-naturwissenschaftliche Classe. 1867.
Sitzungsberichte der Königl. Akademie der Wissenschaften, 1866, München.
Schweizerische Wochenschrift für Pharmacie, 1866.
Lehrbuch der Pharmacognosie des Pflanzenreiches, &c., von Dr. F. A.
Flückiger, Docent an der Universität in Bern.
Pharmaceutische Zeitschrift für Russland, St. Petersburg.

CONSTITUTION

OF THE

American Pharmaceutical Association.

P R E A M B L E.

Whereas, The advancement of pharmaceutical knowledge and the elevation of the professional character of Apothecaries and Druggists, throughout the United States are dear to us in common with all well disposed pharmacutists; and *whereas*, a large portion of those in whose hands the practice of pharmacy now exists are not properly qualified for the responsible offices it involves, chiefly by reason of the many difficulties that impede the acquirement of a correct knowledge of their business :—

Therefore, We, the members of a Convention now met at Philadelphia, [September, 1852,] composed of Apothecaries and Druggists from different sections of the Union, and from all the Colleges and Societies therein existing, with the object of deliberating on the condition of our profession, do hereby resolve and constitute ourselves into a permanent Association, to meet annually, at such times and places as may hereafter be determined, for more effectually accomplishing the objects for which we are now assembled, and do now adopt the following

C O N S T I T U T I O N.

ARTICLE I.

This Association shall be called the American Pharmaceutical Association. Its aim shall be to unite the educated and reputable Pharmacutists and Druggists of the United States in the following objects :

1st. To improve and regulate the drug market, by preventing the importation of inferior, adulterated or deteriorated drugs, and by detecting and exposing home adulteration.

2d. To establish the relations between druggists, pharmacutists, physicians and the people at large, upon just principles, which shall promote the public welfare and tend to mutual strength and advantage.

3d. To improve the science and the art of pharmacy by diffusing scientific knowledge among apothecaries and druggists, fostering pharmaceutical litera-

ture, developing talent, stimulating discovery and invention, and encouraging home production and manufacture in the several departments of the drug business.

4th. To regulate the system of apprenticeship and employment so as to prevent, as far as practicable, the evils flowing from deficient training in the responsible duties of preparing, dispensing and selling medicines.

5th. To suppress empyricism, and as much as possible to restrict the dispensing and sale of medicines to regularly educated druggists and apothecaries.

ARTICLE II.—*Of the Members.*

Section 1. Every pharmacist and druggist, of good moral and professional standing, whether in business on his own account, retired from business, or employed by another, and those teachers of pharmacy, chemistry and botany who may be specially interested in pharmacy and materia medica, who, after duly considering the objects of the Association and the obligations of its Constitution, are willing to subscribe to them, are eligible to membership.

Section 2. The mode of admission to membership shall be as follows: Any person eligible to membership may apply in writing, with the endorsement of two members in good standing, to any member of the Executive Committee, who shall report his application to the said Committee.

If after investigating his claims they shall approve his election, they shall, at the earliest time practicable, report his name to the Association, and he may be elected by two-thirds of the members present on ballot.

Section 3. No person shall be considered a member of this Association until he shall have signed the Constitution, and paid into the Treasury the sum of three dollars as an initiation fee and the annual contribution for the current year. All persons who become members shall be considered as permanent members, but may be expelled for improper conduct by a vote of two-thirds of the members present at any annual meeting.

Section 4. Every member shall pay in advance into the hands of the Treasurer the sum of three dollars as his yearly contribution, and is liable to lose his right of membership by neglecting to pay said contribution for three successive years. Members shall be entitled, on the payment of five dollars, to receive a certificate of membership signed by the President, one Vice President, Permanent Secretary and Treasurer, covenanting to return the same to the proper officer on relinquishing their connection with the Association.

Section 5. Resignation of membership shall be made in writing to the Permanent Secretary or Treasurer; but no resignation shall be accepted from any one who is in arrears to the Treasurer. All resignations shall be acknowledged in writing by the officer who receives them, and shall be reported at the next annual meeting.

Section 6. Every local Pharmaceutical Association shall be entitled to five delegates in the annual meetings, who, if present, become members of the Association on signing the Constitution, without being ballotted for.

Section 7. Pharmacutists, Chemists, and other scientific men, who may be thought worthy of the distinction, may be elected honorary members upon the same conditions and under the same rules as appertain to active members. They shall not, however, be required to contribute to the funds, nor shall they be eligible to hold office or to vote at the meetings.

ARTICLE III.—*Of the Officers.*

Section 1. The officers shall be a President, two or more Vice Presidents, a Permanent Secretary, a Local Secretary and a Treasurer, who shall, with the exception of the Permanent Secretary, be elected annually, and shall hold office until an election of successors.

Section 2. The Permanent Secretary shall be elected to hold office permanently during the pleasure of the Association; he shall receive from the Treasurer an annual salary and the amount of his travelling expenses in addition to his salary.

Section 3. The President shall preside at the meetings, and administer the rules of order usual in deliberative assemblies. He shall nominate all special committees, except a majority of the members present direct a resort to balloting or other means.

He shall sign the certificates of membership, approve all foreign correspondence, and countersign orders on the Treasurer.

He shall present at each annual meeting a report of the operations of the Association during the year, with such information pertaining to its condition and prospects and the object it has in view, together with such suggestions for its future management as may seem to him proper.

Section 4. In case of the temporary absence or inability of the President, his duties shall devolve on one of the Vice-Presidents in the order of their names.

Section 5. The Permanent Secretary shall keep fair and correct minutes of the proceedings of the meetings, and carefully preserve on file all reports, essays, and papers of every description received by the Association, and shall be charged with the necessary foreign and scientific correspondence, and with the editing, publishing and distributing the Proceedings of the Association under the direction of the Executive Committee. He shall furnish the Chairman of every special Committee with a list of its members and a copy of the minute of its appointment, and shall notify every member of the time and place of each annual meeting. He shall be a member of the Executive Committee.

Section 6. The Local Secretary shall be elected annually at the last session of the annual meeting, and shall be a resident of the city at which the next annual meeting of the Association is to be held. It shall be his duty to assist the Permanent Secretary in his duties, to co-operate with any local committee in making arrangements for the annual meeting, to correspond with the Chairmen of the several Committees and with other members, in advance of the meeting promotive of its objects, and to have custody of specimens, papers and apparatus destined for use or exhibition at the meetings. He shall act as

Secretary at the first meeting, or until another shall be appointed, in case of the absence of the Permanent Secretary.

Section 7. The Treasurer shall collect and take charge of the funds of the Association, and shall also hold and issue the certificates of membership. He shall pay no monies unless by the order of the chairman of one of the standing, or of a special committee, authorized to appropriate funds of the Association, such order to be countersigned by the President.

He shall present a statement of his accounts at each annual meeting, that they may be audited. He shall also report to the Executive Committee, previous to each annual meeting, the names of such members as have failed to pay their annual contributions for three years, and also the names of such as have failed to return their certificates of membership after having been officially disconnected with the Association, and duly notified to do so.

ARTICLE IV.—*Of the Standing Committees.*

Section 1. There shall be five standing committees elected annually—Executive Committee, a Committee on the Progress of Pharmacy, a Committee on the Drug Market, each to consist of five members; a Committee on Scientific Queries and a Business Committee, each to consist of three members.

Section 2. The Executive Committee, of which the Permanent Secretary shall be one of the members, shall have charge of the revision of the roll, the investigation of application for membership, and the publication of the Proceedings. They shall report at each meeting a revised roll of members, with appropriate notices of deceased members, also the names of any who, having become disconnected with the Association, refuse to return their certificates of membership as provided by the Constitution.

The annual publication of the Proceedings shall contain the corrected roll of members, full minutes of the several sittings, the Reports of the President and of the Committees, together with such addresses, scientific papers, discussions, notices of new processes and preparations as the Executive Committee may deem worthy of insertion. At least one copy shall be furnished each member of the Association.

Section 3. The Committee on the Progress of Pharmacy, of which the Local Secretary shall be one of the members, shall report annually to the Association on the improvements in Chemistry, Practical Pharmacy and the collateral branches, and on any new works bearing on these subjects published in this country or in Europe.

Section 4. The Committee on Scientific Queries shall report, near the close of each Annual Meeting, a proper number of questions of scientific and practical interest, the answers to which may advance the interests of Pharmacy, and shall procure the acceptance of as many such questions for investigation as may be practicable, and report before the next succeeding Annual Meeting.

Section 5. The Business Committee shall be charged with the transmission of unfinished business from one Annual Meeting to another, with collecting

arranging and expediting the business throughout the various sessions of the Annual Meeting.

ARTICLE V.—*Of the Meetings.*

Section 1. The meetings shall be held annually, or as the Association may from time to time determine; provided, that in case of failure of this from any cause, the duty of calling the Association together shall devolve upon the President, or one of the Vice-Presidents, with the advice and consent of the Executive Committee.

Section 2. At the opening of each annual meeting, the President, or, in case of his absence, one of the Vice-Presidents shall call the meeting to order and preside until after an election of officers; in case the President and Vice-Presidents are absent, this duty shall devolve on the chairman of the Executive Committee, or, in his absence, on any member chosen by vote of those present.

In the absence of the Permanent Secretary the President shall appoint a Secretary, *pro tempore*.

The order of business at the first session of each annual meeting shall be as follows:

1st. The appointment by the President of a committee of three persons to examine credentials, and report the names of those duly accredited.

2d. The Executive Committee shall report the names of new members and of persons present recommended for membership, who shall be immediately ballotted for.

3d. The roll of those in attendance, as thus completed, shall be called by the Permanent Secretary.

4th. The report of the Standing and Special Committees shall be read by their titles, or in full, and laid on the table for future consideration.

5th. A committee to nominate officers for the ensuing year shall be appointed, consisting of one nominated by each delegation in attendance, and three members appointed by the President, from among those not delegated, to report at the opening of the next session.

The first session shall close with the reading of the President's Annual Report, and referring any portion requiring the action of Committees.

After the first session, the order of business shall be determined by the nature of the subjects presented and by the consent of the majority.

Section 3. During periods fixed by vote for scientific discussion and the exhibition of specimens and processes, the ordinary rules of parliamentary bodies shall be suspended, but at other times shall be enforced by the presiding officer, from whose decisions, however, appeals may be taken if required by five members, and the meeting shall thereupon decide without debate.

A motion reduced to writing and seconded shall be open to discussion, and while it is before the meeting no motion shall be received unless to amend,

CONSTITUTION.

divide, commit, to lay on the table, postpone or to adjourn ; and a motion to adjourn shall be decided without debate.

On the call of any member, the yeas and nays shall be ordered; when every member shall vote unless excused by a majority of those present, and the names and manner of voting shall be entered on the Minutes.

ARTICLE VI.

This Constitution may be altered or amended by a vote of three-fourths of the members present at any regular meeting, and notice to alter or amend the same shall be given at least one sitting before a vote thereupon.

Approving of the objects of the American Pharmaceutical Association, I am desirous of joining it in membership; and having read its Constitution, I hereby signify my approval of it, and subscribe to it.

Address.....

I hereby agree to return my certificate of membership in the American Pharmaceutical Association to the Treasurer of that body, if I shall hereafter cease to be connected in membership with it.

TESTIMONIALS.

The undersigned being personally acquainted with _____ of _____ testify to his moral character, his skill as a practical Druggist and Pharmaceutist, and his professional probity and good standing, and they recommend him for membership in the American Pharmaceutical Association.

NAME

ADDRESS.

ROLL OF MEMBERS.

HONORARY MEMBERS.

Daniel B. Smith,	Philadelphia,	Pennsylvania,	1856
Montgomery J. Bailey, M.D.,	New York,	New York,	1856
George B. Wood, M.D.,	Philadelphia,	Pennsylvania,	1857
Elias Durand,	Philadelphia,	Pennsylvania,	1857

ACTIVE MEMBERS.

Henry T. Cummings, M.D.,	Portland,	Maine,	1853
Edmund Dana, Jr.,	Portland,	Maine,	1859
Walter F. Phillips,	Portland,	Maine,	1859
William Atwood,	Portland,	Maine,	1859
Sargent P. Coe,	Portland,	Maine,	1859
F. E. Covell,	Portland,	Maine,	1865
Henry H. Hay,	Portland,	Maine,	1867
Charles K. Partridge,	Augusta,	Maine,	1867
N. S. Harlow,	Bangor,	Maine,	1859
John G. Cook,	Lewistown,	Maine,	1859
Edward E. Shead,	Eastport,	Maine,	1866
Charles A. Tufts,	Dover,	New Hampshire,	1856
O. Gilman Dort,	Keene,	New Hampshire,	1858
Charles A. Merrill,	Exeter,	New Hampshire,	1853
George S. Kendrick,	Lebanon,	New Hampshire,	1858
Joseph H. Thacher,	Portsmouth,	New Hampshire,	1859
John F. Rollins,	Concord,	New Hampshire,	1859
James Morgan,	Concord,	New Hampshire,	1859

George Moore,	Great Falls,	New Hampshire, 1859
Rufus W. Stevens,	Great Falls,	New Hampshire, 1859
George L. Dearborn,	New Market,	New Hampshire, 1853
Frank B. Clock,	Manchester,	New Hampshire, 1865
J. C. Bingham,	St. Johnsbury,	Vermont, 1853
Charles M. Duren,	St. Albans,	Vermont, 1865
Samuel M. Colcord,	Boston,	Massachusetts, 1852
Joseph Burnett,	Boston,	Massachusetts, 1852
Daniel Henchman,	Boston,	Massachusetts, 1853
Thomas Restieaux,	Boston,	Massachusetts, 1853
T. Larkin Turner,	Boston,	Massachusetts, 1853
Henry W. Lincoln,	Boston,	Massachusetts, 1853
Thomas Hollis,	Boston,	Massachusetts, 1853
Ashel Boyden,	Boston,	Massachusetts, 1853
Henry D. Fowle,	Boston,	Massachusetts, 1853
James S. Melvin,	Boston,	Massachusetts, 1853
William W. Goodwin,	Boston,	Massachusetts, 1853
Robert R. Kent,	Boston,	Massachusetts, 1855
Alvah Littlefield,	Boston,	Massachusetts, 1856
Charles H. Atwood,	Boston,	Massachusetts, 1856
James Gordon,	Boston,	Massachusetts, 1857
Theodore Metcalf,	Boston,	Massachusetts, 1857
Abraham S. Wiley,	Boston,	Massachusetts, 1857
William Brown,	Boston,	Massachusetts, 1858
D. B. Kidder,	Boston,	Massachusetts, 1858
George D. Ricker,	Boston,	Massachusetts, 1858
C. H. Lyon, Jr.,	Boston,	Massachusetts, 1858
I. Bartlett Patten,	Boston,	Massachusetts, 1858
Leopold Babo,	Boston,	Massachusetts, 1859
E. Waldo Cutler,	Boston,	Massachusetts, 1859
Theodore S. Harris,	Boston,	Massachusetts, 1859
George H. Chapman,	Boston,	Massachusetts, 1859
Orlando Tompkins,	Boston,	Massachusetts, 1859
Isaac T. Campbell,	Boston,	Massachusetts, 1859
Thomas Doliber,	Boston,	Massachusetts, 1859
B. O. Wilson,	Boston,	Massachusetts, 1859
Michael H. Gleeson,	Boston,	Massachusetts, 1859
James A. Gleeson,	Boston,	Massachusetts, 1859
Joseph T. Brown,	Boston,	Massachusetts, 1859
Moses D. Colby,	Boston,	Massachusetts, 1859
George W. Woodbridge,	Boston,	Massachusetts, 1859

Alfred C. Dana,	Boston,	Massachusetts,	1859
Samuel H. Woods,	Boston,	Massachusetts,	1859
Henry Warren,	Boston,	Massachusetts,	1859
John Butterworth,	Boston,	Massachusetts,	1860
Elijah Smalley,	Boston,	Massachusetts,	1860
Levi Tower, Jr.,	Boston,	Massachusetts,	1860
Charles F. Rogers,	Boston,	Massachusetts,	1860
Thomas S. Moffitt,	Boston,	Massachusetts,	1861
George F. H. Markoe,	Boston,	Massachusetts,	1863
Jos. L. Parker,	Boston,	Massachusetts,	1864
Thomas J. Covell,	Boston,	Massachusetts,	1864
W. D. Atkinson, Jr.,	Boston,	Massachusetts,	1865
James F. Babcock,	Boston,	Massachusetts,	1865
Charles Fred. Bartlett,	Boston,	Massachusetts,	1865
Henry Canning,	Boston,	Massachusetts,	1865
Solomon Carter,	Boston,	Massachusetts,	1865
John R. Colby,	Boston,	Massachusetts,	1865
J. B. Colton,	Boston,	Massachusetts,	1865
E. H. D. Little,	Boston,	Massachusetts,	1865
Gust. D. Dows,	Boston,	Massachusetts,	1865
J. Howes Dyer,	Boston,	Massachusetts,	1865
Geo. W. French,	Boston,	Massachusetts,	1865
Wm. E. Jenkins,	Boston,	Massachusetts,	1865
J. R. Nichols,	Boston,	Massachusetts,	1865
E. H. Perry,	Boston,	Massachusetts,	1865
F. W. Simmons,	Boston,	Massachusetts,	1865
C. G. Underwood,	Boston,	Massachusetts,	1865
Eugene Whittemore,	Boston,	Massachusetts,	1865
D. G. Wilkins,	Boston,	Massachusetts,	1865
Charles H. Bassett,	Boston,	Massachusetts,	1867
Thos. J. Connor,	Boston,	Massachusetts,	1867
Charles I. Eaton,	Boston,	Massachusetts,	1867
Chas. B. R. Hazeltine,	Boston,	Massachusetts,	1867
Luther L. Jenkins,	Boston,	Massachusetts,	1867
Wm. F. Nowell,	Boston,	Massachusetts,	1867
Wm. B. Tower,	Boston,	Massachusetts,	1867
Oliver H. Webber,	East Cambridge,	Massachusetts,	1858
A. H. Ramsay,	Cambridge,	Massachusetts,	1859
John H. Hubbard,	Cambridge,	Massachusetts,	1866
Henry Thayer,	Cambridgeport,	Massachusetts,	1858
A. B. Bayley,	Cambridgeport,	Massachusetts,	1859

Joel S. Orne,	Cambridgeport,	Massachusetts,	1859
Augustus P. Melzar,	Charlestown,	Massachusetts,	1856
Levi G. Dodge,	Charlestown,	Massachusetts,	1859
Benjamin F. Stacey,	Charlestown,	Massachusetts,	1860
Geo. P. Kettell,	Charlestown,	Massachusetts,	1867
Geo. A. Stuart, M. D.,	Charlestown,	Massachusetts,	1867
John Buck,	Chelsea,	Massachusetts,	1855
G. W. Churchill,	Chelsea,	Massachusetts,	1865
David Scott,	Worcester,	Massachusetts,	1855
Nelson R. Scott,	Worcester,	Massachusetts,	1859
M. S. McConville,	Worcester,	Massachusetts,	1859
Thomas A. McConville,	Worcester,	Massachusetts,	1864
George A. Kimball,	Haverhill,	Massachusetts,	1859
H. M. Whitney,	Lawrence,	Massachusetts,	1859
Edmund Bigelow,	Springfield,	Massachusetts,	1860
John E. Doyle,	Springfield,	Massachusetts,	1866
John Hooker,	Springfield,	Massachusetts,	1867
C. C. Bixby,	N. Bridgewater,	Massachusetts,	1859
Benjamin Proctor,	Lynn,	Massachusetts,	1859
James Emerton,	Salem,	Massachusetts,	1859
S. A. D. Sheppard,	Salem,	Massachusetts,	1865
Samuel Kidder, Jr.,	Lowell,	Massachusetts,	1859
David Coggin,	Lowell,	Massachusetts,	1864
Wm. H. French,	Lowell,	Massachusetts,	1865
T. Gibson Tweed,	Lowell,	Massachusetts,	1865
Charles E. Savell,	Roxbury,	Massachusetts,	1860
Eben Blatchford,	Rockport,	Massachusetts,	1857
Eben Blatchford, Jr.,	Rockport,	Massachusetts,	1865
George W. Berrian, Jr.	North Andover,	Massachusetts,	1857
F. T. Whiting,	Great Barrington,	Massachusetts,	1863
Wm. D. Broomhead,	East Somerville,	Massachusetts,	1865
George Marsh,	Dedham,	Massachusetts,	1865
Jeremiah Sanborn, Jr.,	Dorchester,	Massachusetts,	1865
E. R. Knights,	Melrose,	Massachusetts,	1865
Andrew Geyer,	Ipswich,	Massachusetts,	1865
James E. Blake,	New Bedford,	Massachusetts,	1865
James L. Hunt,	Hingham,	Massachusetts,	1865
Wm. Aug. Safford,	Feltonville,	Massachusetts,	1865
C. H. Lowe,	Newton Corner,	Massachusetts,	1865
Geo. W. Bird,	Brookline,	Massachusetts,	1867
William Warren,	Brighton,	Massachusetts,	1867

Robert F. Lattimer,	Westerly,	Rhode Island,	1857
L. R. Blackman,	Westerly,	Rhode Island,	1865
Robert J. Taylor,	Newport,	Rhode Island,	1859
Wm. S. N. Allen,	Newport,	Rhode Island,	1865
Albert L. Calder,	Providence,	Rhode Island,	1859
G. A. Copeland,	Providence,	Rhode Island,	1867
Albert J. Congdon,	East Greenwich,	Rhode Island,	1860
F. A. Weber,	Woonsocket,	Connecticut,	1860
Nathan Dikeman,	Waterbury,	Connecticut,	1865
Alfred Daggett, Jr.,	New Haven,	Connecticut,	1865
Nathan F. Peck,	Rockville,	Connecticut,	1861
George D. Coggeshall,	New York City,	New York,	1852
Eugene Dupuy,	New York City,	New York,	1852
C. B. Guthrie,	New York City,	New York,	1852
Henry F. Fish,	New York City,	New York,	1852
Wm. A. Brewer,	New York City,	New York,	1853
Junius Gridley,	New York City,	New York,	1853
James S. Aspinwall,	New York City,	New York,	1855
John Canavan,	New York City,	New York,	1855
John Milhau,	New York City,	New York,	1855
Isaac Coddington,	New York City,	New York,	1855
Frederick Hale,	New York City,	New York,	1855
H. T. Kiersted,	New York City,	New York,	1856
Henry Haviland,	New York City,	New York,	1857
George W. De la Vergne,	New York City,	New York,	1857
John Faber,	New York City,	New York,	1857
Thomas T. Green,	New York City,	New York,	1858
Ray B. Easterbrook,	New York City,	New York,	1858
Henry A. Cassebeer,	New York City,	New York,	1858
Edward L. Milhau,	New York City,	New York,	1858
Lewis T. Lazell,	New York City,	New York,	1858
Edward H. Marsh,	New York City,	New York,	1858
John H. Currie,	New York City,	New York,	1858
Robert A. Sands,	New York City,	New York,	1858
William Hegeman,	New York City,	New York,	1858
William A. Gellatly,	New York City,	New York,	1858
J. H. Westerfield,	New York City,	New York,	1858
Lucian F. Wheeler,	New York City,	New York,	1858
Henry Kiersted,	New York City,	New York,	1858
Raymond Graverend,	New York City,	New York,	1859
L. Leroy,	New York City,	New York,	1859

• William Wright, Jr.,	New York City,	New York,	1859
P. Wendover Bedford,	New York City,	New York,	1859
John W. Shedden,	New York City,	New York,	1859
W. Neergaard,	New York City,	New York,	1859
F. F. Mayer,	New York City,	New York,	1859
Alexander V. Blake,	New York City,	New York,	1860
William M. Giles,	New York City,	New York,	1860
Paul Balluff,	New York City,	New York,	1860
John Carle, Jr.,	New York City,	New York,	1860
Jabez H. Hazard,	New York City,	New York,	1860
James Weaver,	New York City,	New York,	1860
George W. Southwick,	New York City,	New York,	1860
E. L. Johnson,	New York City,	New York,	1860
Theodore Schumann,	New York City,	New York,	1860
George G. Porter,	New York City,	New York,	1860
George E. Sheils,	New York City,	New York,	1860
Warren B. Gardiner,	New York City,	New York,	1860
Gustav Ramsperger,	New York City,	New York,	1860
B. H. Reinold,	New York City,	New York,	1861
Adolph G. Dunn,	New York City,	New York,	1862
Theobald Frohwein,	New York City,	New York,	1862
W. Fisher,	New York City,	New York,	1862
A. W. Gabaudan,	New York City,	New York,	1862
James S. Higgins,	New York City,	New York,	1862
Daniel C. Robbins,	New York City,	New York,	1862
Henry J. Weber,	New York City,	New York,	1863
George J. McKay,	New York City,	New York,	1864
F. W. Colby,	New York City,	New York,	1865
John Frey,	New York City,	New York,	1865
Max Frohwein,	New York City,	New York,	1865
Henry W. Fuller,	New York City,	New York,	1865
Chas. F. L. Hohenthal,	New York City,	New York,	1865
C. W. Kitchen,	New York City,	New York,	1865
Gustavus Krehbiel,	New York City,	New York,	1865
Alfred Mason,	New York City,	New York,	1865
James F. Morgan,	New York City,	New York,	1865
Michael Flynn,	New York City,	New York,	1866
Lucian M. Rice,	New York City,	New York,	1866
James T. Skelley,	New York City,	New York,	1866
Chas. F. Chandler, Ph. D.,	New York City,	New York,	1867
E. Fougere,	New York City,	New York,	1867

John W. Gilmore,	New York City,	New York,	1867
Augustus Goecke,	New York City,	New York,	1867
David Hays,	New York City,	New York,	1867
Gottfried Hebbeling,	New York City,	New York,	1867
Frederick Hoffmann, Ph.D.,	New York City,	New York,	1867
Henry Kimmel,	New York City,	New York,	1867
John McKesson, Jr.,	New York City,	New York,	1867
Ernest Molwitz,	New York City,	New York,	1867
William H. C. Onderdonk,	New York City,	New York,	1867
George G. Sands,	New York City,	New York,	1867
James L. Schofield,	New York City,	New York,	1867
William H. Whitney,	New York City,	New York,	1867
Alexander Hudnut,	Brooklyn,	New York,	1857
Tristram W. Metcalf,	Brooklyn,	New York,	1857
Edward R. Squibb, M. D.,	Brooklyn,	New York,	1858
Robert J. Davies,	Brooklyn,	New York,	1858
George C. Close,	Brooklyn,	New York,	1858
Cyrus Pyle,	Brooklyn,	New York,	1859
Francis M. Bassett,	Brooklyn,	New York,	1860
Thomas Kinghorne,	Brooklyn,	New York,	1860
W. E. P. Baylis,	Brooklyn,	New York,	1860
Richard J. Owens,	Brooklyn,	New York,	1860
Victor Heidenreich,	Brooklyn,	New York,	1860
Joshua G. Wilbur,	Brooklyn,	New York,	1860
John H. Niebrugge,	Brooklyn,	New York,	1861
J. F. Conway,	Brooklyn,	New York,	1862
Spencer O. Hatfield,	Brooklyn,	New York,	1864
Gilbert Long,	Brooklyn,	New York,	1864
Sylvester M. Earle,	Brooklyn,	New York,	1864
Robert R. Rhodes,	Brooklyn,	New York,	1865
George A. Newman,	Brooklyn,	New York,	1865
John I. Fellows,	Brooklyn,	New York,	1865
C. Grenville Curtiss,	Brooklyn,	New York,	1866
Chas. O. Rano,	Brooklyn,	New York,	1866
Eugene J. Weeks,	Brooklyn,	New York,	1866
John A. Dunn,	Brooklyn,	New York,	1867
Emil Heydenreich,	Brooklyn,	New York,	1867
Thos. Lewis,	Brooklyn,	New York,	1867
Frank C. Musgiller,	Brooklyn,	New York,	1867
Jas. H. Ollif,	Brooklyn,	New York,	1867
Herschel Parker,	Brooklyn,	New York,	1867

Jos. P. Remington,	Brooklyn,	New York,	1867
Ambrose C. Snyder,	Brooklyn,	New York,	1867
C. N. Stirling,	Brooklyn,	New York,	1867
Alfred J. Tartiss,	Brooklyn,	New York,	1867
Wm. Wynn,	Brooklyn,	New York,	1867
R. S. McMurdy, M. D.,	Albany,	New York,	1861
William H. McRae,	North Shore, S. L.,	New York,	1861
Henry E. Webb,	West Farms,	New York,	1865
S. G. Welling,	New Rochelle,	New York,	1860
William G. Stephens,	Yonkers,	New York,	1860
Robert J. Toplis,	Yonkers,	New York,	1863
Eugene Alex. Houston,	Yonkers,	New York,	1864
Bernard Goodman,	Yonkers,	New York,	1867
Aug. Theodore Moith,	Fishkill Landing,	New York,	1860
H. A. Tilden,	New Lebanon,	New York,	1858
William H. Peabody,	Buffalo,	New York,	1857
H. A. Blauw,	Rochester,	New York,	1856
Alfred S. Lane,	Rochester,	New York,	1857
George Breck,	Rochester,	New York,	1866
James T. King,	Middletown,	New York,	1859
John T. Hanning,	Syracuse,	New York,	1864
Erastus N. Champlin,	Saratoga Springs,	New York,	1864
Charles F. Fish,	Saratoga Springs,	New York,	1866
Hervey D. Thatcher,	Potsdam,	New York,	1865
Thos. V. Crandall, M. D.,	Newburgh,	New York,	1866
John E. Peck,	Newburgh,	New York,	1866
N. Mead,	Peekskill,	New York,	1865
Thos. L. Johnson,	Cooperstown,	New York,	1867
James Stratton,	Bordentown,	New Jersey,	1859
Bunting Hankins,	Bordentown,	New Jersey,	1865
James R. Mercein,	Jersey City,	New Jersey,	1865
J. M. Abernethy,	Jersey City,	New Jersey,	1865
James M. Harner,	Jersey City,	New Jersey,	1867
Adolph Kirsten,	Jersey City,	New Jersey,	1867
Wm. R. Laird,	Jersey City,	New Jersey,	1867
William R. Schanck,	Jersey City,	New Jersey,	1867
Richard Frohwein,	Elizabethport,	New Jersey,	1867
Peter V. Coppuck,	Mount Holly,	New Jersey,	1857
A. S. White,	Mount Holly,	New Jersey,	1860
C. H. Dalrymple,	Morristown,	New Jersey,	1860
Wm. J. Allinson,	Burlington,	New Jersey,	1862

Henry B. Morris,	Burlington,	New Jersey,	1864
John A. Vandegrift,	Burlington,	New Jersey,	1867
Charles Ellis,	Philadelphia,	Pennsylvania,	1852
William Procter, Jr.,	Philadelphia,	Pennsylvania,	1852
Alfred B. Taylor,	Philadelphia,	Pennsylvania,	1852
Edward Parrish,	Philadelphia,	Pennsylvania,	1852
Peter J. Hassard,	Philadelphia,	Pennsylvania,	1858
John M. Maisch,	Philadelphia,	Pennsylvania,	1856
Israel J. Grahame,	Philadelphia,	Pennsylvania,	1856
Dillwyn Parrish,	Philadelphia,	Pennsylvania,	1857
Samuel F. Troth,	Philadelphia,	Pennsylvania,	1857
Ambrose Smith,	Philadelphia,	Pennsylvania,	1857
Thomas P. James,	Philadelphia,	Pennsylvania,	1857
Charles Bullock,	Philadelphia,	Pennsylvania,	1857
Thomas S. Wiegand,	Philadelphia,	Pennsylvania,	1857
Samuel N. James,	Philadelphia,	Pennsylvania,	1857
Evan T. Ellis,	Philadelphia,	Pennsylvania,	1857
Wilson H. Pile, M. D.,	Philadelphia,	Pennsylvania,	1857
Samuel S. Bunting,	Philadelphia,	Pennsylvania,	1857
T. Morris Perot,	Philadelphia,	Pennsylvania,	1857
Asher S. Leidy,	Philadelphia,	Pennsylvania,	1857
Samuel Chapman, M. D.,	Philadelphia,	Pennsylvania,	1857
Edward H. Hance,	Philadelphia,	Pennsylvania,	1857
Charles H. Eggert,	Philadelphia,	Pennsylvania,	1857
George M. Snowden,	Philadelphia,	Pennsylvania,	1857
William R. Warner,	Philadelphia,	Pennsylvania,	1857
O. S. Hubbell,	Philadelphia,	Pennsylvania,	1857
Henry N. Rittenhouse,	Philadelphia,	Pennsylvania,	1857
William J. Jenks,	Philadelphia,	Pennsylvania,	1858
E. Raphael Perot,	Philadelphia,	Pennsylvania,	1858
W. B. Thompson,	Philadelphia,	Pennsylvania,	1858
J. A. Heintzelman,	Philadelphia,	Pennsylvania,	1858
Adolphus F. Neynaber,	Philadelphia,	Pennsylvania,	1859
Adam H. Wilson,	Philadelphia,	Pennsylvania,	1859
Benjamin F. Johnson,	Philadelphia,	Pennsylvania,	1859
Thos. A. Lancaster,	Philadelphia,	Pennsylvania,	1859
Daniel S. Jones,	Philadelphia,	Pennsylvania,	1859
James T. Shinn,	Philadelphia,	Pennsylvania,	1860
George J. Scattergood,	Philadelphia,	Pennsylvania,	1860
Charles Shivers,	Philadelphia,	Pennsylvania,	1860
William Evans, Jr.,	Philadelphia,	Pennsylvania,	1860

Benjamin J. Crew,	Philadelphia,	Pennsylvania,	1860
J. Lewis Crew,	Philadelphia,	Pennsylvania,	1860
George Blinkhorn,	Philadelphia,	Pennsylvania,	1860
Henry Bower,	Philadelphia,	Pennsylvania,	1860
Thomas R. Coombe,	Philadelphia,	Pennsylvania,	1860
J. B. Moore,	Philadelphia,	Pennsylvania,	1860
George Y. Shoemaker,	Philadelphia,	Pennsylvania,	1862
John C. Everson,	Philadelphia,	Pennsylvania,	1863
Clayton N. Wills,	Philadelphia,	Pennsylvania,	1864
Charles F. Gristock,	Philadelphia,	Pennsylvania,	1864
Edward C. Jones,	Philadelphia,	Pennsylvania,	1864
William C. Bakes,	Philadelphia,	Pennsylvania,	1864
Samuel Campbell,	Philadelphia,	Pennsylvania,	1864
S. Mason McCollin,	Philadelphia,	Pennsylvania,	1864
William Ellis,	Philadelphia,	Pennsylvania,	1864
Alfred Mellor,	Philadelphia,	Pennsylvania,	1864
George H. Ashton,	Philadelphia,	Pennsylvania,	1864
James L. Bispham,	Philadelphia,	Pennsylvania,	1865
Andrew Blair,	Philadelphia,	Pennsylvania,	1865
Geo. W. Eldridge,	Philadelphia,	Pennsylvania,	1865
Ch. Eug. Haenchen,	Philadelphia,	Pennsylvania,	1865
Robert B. Parkinson,	Philadelphia,	Pennsylvania,	1865
Robert Platzer,	Philadelphia,	Pennsylvania,	1865
Alonzo Robbins,	Philadelphia,	Pennsylvania,	1865
R. M. Shoemaker, Jr.,	Philadelphia,	Pennsylvania,	1865
J. Henry C. Simes,	Philadelphia,	Pennsylvania,	1865
W. B. Abell,	Philadelphia,	Pennsylvania,	1867
John R. Angney,	Philadelphia,	Pennsylvania,	1867
Henry C. Archibald,	Philadelphia,	Pennsylvania,	1867
Louis G. Bauer,	Philadelphia,	Pennsylvania,	1867
Edwin McC. Boring,	Philadelphia,	Pennsylvania,	1867
Thos. J. Casper, M. D.,	Philadelphia,	Pennsylvania,	1867
Henry Cramer,	Philadelphia,	Pennsylvania,	1867
Edward J. Dobbins,	Philadelphia,	Pennsylvania,	1867
Augustus Everhart,	Philadelphia,	Pennsylvania,	1867
Samuel T. Jones,	Philadelphia,	Pennsylvania,	1867
Decatur Milligan,	Philadelphia,	Pennsylvania,	1867
Joseph L. Shoemaker,	Philadelphia,	Pennsylvania,	1867
Isaac W. Smith,	Philadelphia,	Pennsylvania,	1867
Wm. H. Webb, M. D.,	Philadelphia,	Pennsylvania,	1867
Charles L. Eberle,	Germantown,	Pennsylvania,	1865

John Heyl Raser,	Reading,	Pennsylvania,	1867
P. M. Ziegler,	Reading,	Pennsylvania,	1867
Charles A. Bannvart,	Harrisburg,	Pennsylvania,	1856
William Heyser, Jr.,	Chambersburg,	Pennsylvania,	1856
Charles A. Heinitsh,	Lancaster,	Pennsylvania,	1857
Leander Neal,	Meadville,	Pennsylvania,	1858
M. M. Selfridge,	Bethlehem,	Pennsylvania,	1858
James T. Borhek, Jr.,	Bethlehem,	Pennsylvania,	1867
William S. Sieger,	South Bethlehem,	Pennsylvania,	1867
Joseph L. Lemberger,	Lebanon,	Pennsylvania,	1858
Washington Laycock,	Danville,	Pennsylvania,	1857
Geo. A. Kelley,	Alleghany,	Pennsylvania,	1864
Samuel K. Norgrove,	Pittsburg,	Pennsylvania,	1857
Jon. C. Mattern,	Pittsburg,	Pennsylvania,	1860
Alfred J. Rankin,	Pittsburg,	Pennsylvania,	1864
Joseph Abel,	Pittsburg,	Pennsylvania,	1864
R. Vinton Steele,	Pittsburg,	Pennsylvania,	1866
M. C. Morgan,	Pittsburg,	Pennsylvania,	1867
Richard Tener, Jr.,	Wilkesbarre,	Pennsylvania,	1863
J. A. Meyers,	Columbia,	Pennsylvania,	1867
J. C. Hughes,	Pottsville,	Pennsylvania,	1862
Francis P. Green,	Bellefonte,	Pennsylvania,	1864
Louis M. Emanuel, M. D.,	Linwood,	Pennsylvania,	1857
Wm. F. Logan,	Williamsport,	Pennsylvania,	1866
Ferris Bringham,	Wilmington,	Delaware,	1862
John M. Cunningham,	Wilmington,	Delaware,	1867
John Dixon,	Wilmington,	Delaware,	1867
Edw. McInall, Jr.,	Wilmington,	Delaware,	1867
Benjamin Shoemaker, Jr.,	Wilmington,	Delaware,	1867
Charles Shoemaker,	Wilmington,	Delaware,	1867
John H. Simms, M. D.,	Wilmington,	Delaware,	1867
Charles E. Ferris, M. D.,	New Castle,	Delaware,	1867
A. P. Sharp,	Baltimore,	Maryland,	1855
George W. Andrews,	Baltimore,	Maryland,	1856
J. Jacob Smith,	Baltimore,	Maryland,	1856
Charles Caspari,	Baltimore,	Maryland,	1856
J. H. Lemmon,	Baltimore,	Maryland,	1856
Joseph Roberts,	Baltimore,	Maryland,	1856
E. J. Russell,	Baltimore,	Maryland,	1856
J. Faris Moore,	Baltimore,	Maryland,	1856
Oscar Monsarrat,	Baltimore,	Maryland,	1856

J. B. Baxley,	Baltimore,	Maryland,	1856
William S. Thompson,	Baltimore,	Maryland,	1856
William Caspari,	Baltimore,	Maryland,	1856
J. J. Thomsen,	Baltimore,	Maryland,	1856
N. H. Jennings,	Baltimore,	Maryland,	1857
Elisha H. Perkins,	Baltimore,	Maryland,	1857
A. Vogeler,	Baltimore,	Maryland,	1858
Lewis Dohme,	Baltimore,	Maryland,	1859
H. A. Elliott,	Baltimore,	Maryland,	1859
John Block,	Baltimore,	Maryland,	1860
John S. Benzinger,	Baltimore,	Maryland,	1860
James E. McDaniel,	Baltimore,	Maryland,	1860
H. M. Pettit,	Baltimore,	Maryland,	1860
J. A. Wolf,	Baltimore,	Maryland,	1860
William H. Brown,	Baltimore,	Maryland,	1863
Alexander E. Brown,	Baltimore,	Maryland,	1863
Charles E. Dohme,	Baltimore,	Maryland,	1863
S. Ellwood Morrison,	Baltimore,	Maryland,	1863
Joseph C. O'Brien,	Baltimore,	Maryland,	1863
John G. Nagle,	Baltimore,	Maryland,	1863
Thos. E. Kirby, M. D.,	Baltimore,	Maryland,	1863
Alonzo Lilly, Jr.,	Baltimore,	Maryland,	1863
Wm. W. Cunningham,	Baltimore,	Maryland,	1863
E. Walton Russell,	Baltimore,	Maryland,	1863
Columbus V. Emich,	Baltimore,	Maryland,	1863
John F. Hancock,	Baltimore,	Maryland,	1863
John P. Muth,	Baltimore,	Maryland,	1863
John H. Winkleman,	Baltimore,	Maryland,	1864
Michael J. Lauer,	Baltimore,	Maryland,	1865
J. C. Leamy,	Baltimore,	Maryland,	1867
Geo. F. Dannattel,	Baltimore,	Maryland,	1867
M. W. Donavin,	Baltimore,	Maryland,	1867
C. A. Lampanius,	Baltimore,	Maryland,	1867
Charles L. Tilyard,	Baltimore,	Maryland,	1867
Daniel B. Street,	Centreville,	Maryland,	1867
Jonas Winter,	Hagerstown,	Maryland,	1863
Joseph G. Skinner,	Salisbury,	Maryland,	1864
John L. Kidwell,	Georgetown,	Dist. Columbia,	1856
Valentine Harbaugh,	Washington,	Dist. Columbia,	1856
F. S. Walsh,	Washington,	Dist. Columbia,	1856
Samuel F. Tyson,	Washington,	Dist. Columbia,	1857

James N. Callan,	Washington,	Dist. Columbia,	1857
John A. Milburn,	Washington,	Dist. Columbia,	1858
Joseph W. Nairn,	Washington,	Dist. Columbia,	1858
S. R. Sylvester,	Washington,	Dist. Columbia,	1858
Francis Gaither,	Washington,	Dist. Columbia,	1860
Giles G. C. Simms,	Washington,	Dist. Columbia,	1860
Talbot C. Murray,	Washington,	Dist. Columbia,	1863
R. C. Lineaweaver,	Washington,	Dist. Columbia,	1864
Charles C. Callan,	Washington,	Dist. Columbia,	1867
R. B. Ferguson,	Washington,	Dist. Columbia,	1867
Daniel P. Hickling,	Washington,	Dist. Columbia,	1867
J. Stanley Jones,	Washington,	Dist. Columbia,	1867
R. H. Stabler, M. D.,	Alexandria,	Virginia,	1856
James Cooke,	Fredericksburg,	Virginia,	1856
Charles K. Gallagher,	Washington,	North Carolina,	1857
Richard B. Saunders,	Chapel Hill,	North Carolina,	1858
H. J. Menninger,	Newbern,	North Carolina,	1866.
Lewis T. Sillyman,	Columbia,	South Carolina,	1859
Edw. H. Heinitch,	Columbia,	South Carolina,	1867
John M. Clark,	Milledgeville,	Georgia,	1857
Fleming C. Grieve,	Milledgeville,	Georgia,	1859
R. H. Land,	Augusta,	Georgia,	1859
J. Henry Zeilin,	Macon,	Georgia,	1859
P. C. Candidus,	Aberdeen,	Mississippi,	1857
Crawford Blackwood,	Columbus,	Mississippi,	1857
Matthew F. Ash,	Jackson,	Mississippi,	1856
William Pryor Creecy,	Vicksburg,	Mississippi,	1860
Charles C. Thornton, M. D.,	Yazoo City,	Mississippi,	1862
James A. Lee,	New Iberia,	Louisiana,	1856
John H. Pope,	New Orleans,	Louisiana,	1860
Frederick A. Keffer,	New Orleans,	Louisiana,	1862
William P. Keffer,	New Orleans,	Louisiana,	1866
Hennell Stevens,	Columbia,	Texas,	1857
Wm. B. Chapman,	Cincinnati,	Ohio,	1852
W. J. M. Gordon,	Cincinnati,	Ohio,	1854
Wm. S. Merrell,	Cincinnati,	Ohio,	1854
Wm. H. Adderly,	Cincinnati,	Ohio,	1854
John Scott,	Cincinnati,	Ohio,	1854
William C. Arons,	Cincinnati,	Ohio,	1854
E. S. Wayne,	Cincinnati,	Ohio,	1854
Paul Reinlein,	Cincinnati,	Ohio,	1856

Oliver F. Gordon,	Cincinnati,	Ohio,	1857
A. W. Foertmyer,	Cincinnati,	Ohio,	1864
John Keeshan,	Cincinnati,	Ohio,	1864
F. A. Crowther,	Cincinnati,	Ohio,	1864
Alfred C. Hill,	Cincinnati,	Ohio,	1864
T. L. A. Greve,	Cincinnati,	Ohio,	1864
A. Wagner,	Cincinnati,	Ohio,	1864
H. F. Reum,	Cincinnati,	Ohio,	1864
E. Berghausen,	Cincinnati,	Ohio,	1864
A. Fennel,	Cincinnati,	Ohio,	1864
Ernest Kampfmueller,	Cincinnati,	Ohio,	1864
James W. Nadand,	Cincinnati,	Ohio,	1864
C. H. Bode,	Cincinnati,	Ohio,	1864
O. Heineman,	Cincinnati,	Ohio,	1864
Wm. Karrmann,	Cincinnati,	Ohio,	1864
J. D. Wells,	Cincinnati,	Ohio,	1864
H. H. Hill,	Cincinnati,	Ohio,	1864
A. M. Johnston,	Cincinnati,	Ohio,	1864
James Markward,	Cincinnati,	Ohio,	1864
Wm. Tilley,	Cincinnati,	Ohio,	1864
A. Salpius,	Cincinnati,	Ohio,	1864
Henry Fritsch,	Cincinnati,	Ohio,	1864
W. E. Reifsnider,	Cincinnati,	Ohio,	1864
Matthew M. Yorston,	Cincinnati,	Ohio,	1864
Michael Parr,	Cincinnati,	Ohio,	1864
S. L. Hayden,	Cincinnati,	Ohio,	1864
J. G. Fratz,	Cincinnati,	Ohio,	1864
A. Hottendorf,	Cincinnati,	Ohio,	1864
George Eger,	Cincinnati,	Ohio,	1864
Griffith Rees,	Cincinnati,	Ohio,	1864
C. M. Helman,	Cincinnati,	Ohio,	1864
H. M. Merrill,	Cincinnati,	Ohio,	1864
Charles Foertmyer,	Cincinnati,	Ohio,	1864
Bruce M. Brake,	Cincinnati,	Ohio,	1865
Daniel Roemer,	Cincinnati,	Ohio,	1865
Alfred V. Forgey,	Cincinnati,	Ohio,	1865
Augustus Henkel,	Cincinnati,	Ohio,	1865
J. F. Judge,	Cincinnati,	Ohio,	1866
F. M. Odena,	Cincinnati,	Ohio,	1866
George B. McPherson,	Cincinnati,	Ohio,	1867
George H. Fickardt,	Circleville,	Ohio,	1864
Hiram Maguire,	Portsmouth,	Ohio,	1864

J. W. Dietrich,	Dayton,	Ohio,	1856
William Fiske,	Cleveland,	Ohio,	1857
E. W. Sackrider,	Cleveland,	Ohio,	1859
Robert C. Kennedy,	Cleveland,	Ohio,	1865
Joseph H. Debolt,	Fulton,	Ohio,	1864
J. F. Grossklaus,	Navarre,	Ohio,	1859
Alex. Garver,	Navarre,	Ohio,	1866
T. B. Dorsey,	Dresden,	Ohio,	1866
W. S. Fuller,	Wilmington,	Ohio,	1866
C. J. Geiger,	Canton,	Ohio,	1866
Walter P. Geiger,	Canton,	Ohio,	1867
William P. H. Barr,	Alliance,	Ohio,	1867
Robert S. Drake,	Piqua,	Ohio,	1867
J. H. Larwill, Jr.,	Columbia,	Tennessee,	1858
J. Marshall Caldwell,	Knoxville,	Tennessee,	1866
Henry C. Steever,	Memphis,	Tennessee,	1865
Leonce Cherot,	Memphis,	Tennessee,	1865
Frederick Stearns,	Detroit,	Michigan,	1855
T. R. Spence,	Detroit,	Michigan,	1857
Samuel P. Duffield, Ph. D.,	Detroit,	Michigan,	1859
George M. Wheeler,	Detroit,	Michigan,	1860
William Johnston,	Detroit,	Michigan,	1860
H. S. Biddle,	Detroit,	Michigan,	1866
Jacob S. Farrand,	Detroit,	Michigan,	1866
Frank E. Fletcher,	Detroit,	Michigan,	1866
J. H. Griffith,	Detroit,	Michigan,	1866
T. H. Griffith,	Detroit,	Michigan,	1866
H. E. Hill,	Detroit,	Michigan,	1866
Frank Lawrence,	Detroit,	Michigan,	1866
E. L'Hommedieu,	Detroit,	Michigan,	1866
Theodore Ronnefeld,	Detroit,	Michigan,	1866
S. S. Stearns,	Detroit,	Michigan,	1866
James Vernon,	Detroit,	Michigan,	1866
Saml. S. Garrigues, Ph. D.,	East Saginaw,	Michigan,	1855
Alfred A. Dunk,	East Saginaw,	Michigan,	1867
Richard Vogel,	Saginaw City,	Michigan,	1867
J. M. Holland,	Jackson,	Michigan,	1866
Noah Huckins,	Jackson,	Michigan,	1866
James C. Meseroll,	Jackson,	Michigan,	1867
Emanuel Mann,	Ann Arbor,	Michigan,	1866
Robert C. Wardell,	Battle Creek,	Michigan,	1860

George P. Glazier,	Parma,	Michigan,	1863
A. Landon,	Parma,	Michigan,	1866
Josiah B. Frost,	Ypsilanti,	Michigan,	1866
Charles F. Uhl,	Monroe,	Michigan,	1866
Julius Weiss,	Monroe,	Michigan,	1866
Daniel W. Richardson,	Almont,	Michigan,	1866
Henry Griffin,	Grand Haven,	Michigan,	1866
James W. Backus,	Marine City,	Michigan,	1867
Thomas H. Barr,	Terre Haute,	Indiana,	1853
James Gallagher,	Terre Haute,	Indiana,	1865
Geo. W. Austin,	Terre Haute,	Indiana,	1865
B. F. Scribner,	New Albany,	Indiana,	1858
George W. Sloan,	Indianapolis,	Indiana,	1857
E. T. Miller,	Indianapolis,	Indiana,	1859
N. M. Woods,	Indianapolis,	Indiana,	1866
W. J. Luck,	Vincennes,	Indiana,	1859
Jerome B. Jardella,	Vincennes,	Indiana,	1865
Andrew J. Tully,	Fort Wayne,	Indiana,	1862
Edwin Tomlinson,	Fort Wayne,	Indiana,	1865
H. Van Sweringen,	Fort Wayne,	Indiana,	1865
G. W. Brown,	Logansport,	Indiana,	1865
Uriah F. Shalter,	Lafayette,	Indiana,	1864
Fred. Nest,	La Porte,	Indiana,	1866
John H. Ehlers,	Auburn,	Indiana,	1867
Fred Weiss,	Jeffersonville,	Indiana,	1867
Edwin O. Gale,	Chicago,	Illinois,	1857
William H. Gale,	Chicago,	Illinois,	1857
James D. Paine,	Chicago,	Illinois,	1857
George Buck,	Chicago,	Illinois,	1860
Wm. F. Blocki,	Chicago,	Illinois,	1863
F. Mahla, Ph. D.,	Chicago,	Illinois,	1864
Alb. E. Ebert,	Chicago,	Illinois,	1864
James W. Mill,	Chicago,	Illinois,	1864
E. H. Sargent,	Chicago,	Illinois,	1864
Henry Biroth,	Chicago,	Illinois,	1865
James V. Z. Blaney, M. D.,	Chicago,	Illinois,	1865
S. S. Bliss,	Chicago,	Illinois,	1865
Thomas Brown,	Chicago,	Illinois,	1865
A. B. Bryan,	Chicago,	Illinois,	1865
F. A. Bryan,	Chicago,	Illinois,	1865
N. T. Curth,	Chicago,	Illinois,	1865

Emil Dietzsch,	Chicago,	Illinois,	1865
Emil Dreier,	Chicago,	Illinois,	1865
Henry G. d'Evers,	Chicago,	Illinois,	1865
G. M. Hambright,	Chicago,	Illinois,	1865
Charles Heylman,	Chicago,	Illinois,	1865
J. H. Hooper,	Chicago,	Illinois,	1865
George McPherson,	Chicago,	Illinois,	1865
W. H. Muller,	Chicago,	Illinois,	1865
John Parsons,	Chicago,	Illinois,	1865
J. P. Sharp,	Chicago,	Illinois,	1865
Henry Sweet,	Chicago,	Illinois,	1865
Thos. Whitfield,	Chicago,	Illinois,	1865
Joseph Willard,	Chicago,	Illinois,	1865
Louis Woltersdorf,	Chicago,	Illinois,	1865
Stawell W. Gillespie,	Chicago,	Illinois,	1866
Ira Lackey,	Chicago,	Illinois,	1866
Phil. L. Milleman,	Chicago,	Illinois,	1866
Will. Reinhold,	Chicago,	Illinois,	1866
Nobel Schroeder,	Chicago,	Illinois,	1866
Louis C. Strehl,	Chicago,	Illinois,	1866
E. P. Tourtelot,	Chicago,	Illinois,	1866
Frank J. Tourtelot,	Chicago,	Illinois,	1866
J. C. Borchardt,	Chicago,	Illinois,	1867
J. W. Ehrman,	Chicago,	Illinois,	1867
W. Austin Joyce,	Chicago,	Illinois,	1867
D. S. Dyson,	Blomington,	Illinois,	1856
Edwin R. Smith,	Monmouth,	Illinois,	1862
John Burrell,	Freeport,	Illinois,	1865
M. A. Breed,	Peoria,	Illinois,	1866
G. T. Chamberlain,	St. Louis,	Missouri,	1853
Eugene L. Massot,	St. Louis,	Missouri,	1857
James O'Gallagher,	St. Louis,	Missouri,	1858
Alexander Leitch,	St. Louis,	Missouri,	1858
Enno Sander, Ph. D.,	St. Louis,	Missouri,	1858
Isaac E. Jones,	St. Louis,	Missouri,	1858
Samuel D. Hendel,	St. Louis,	Missouri,	1858
Arthur Leitch,	St. Louis,	Missouri,	1860
C. F. G. Meyer,	St. Louis,	Missouri,	1860
Henry W. Scheffer,	St. Louis,	Missouri,	1863
W. H. Crawford,	St. Louis,	Missouri,	1864
Theodore Kalb,	St. Louis,	Missouri,	1864

James McBride,	St. Louis,	Missouri,	1864
Thos. Tanton,	St. Louis,	Missouri,	1865
Evermont Randals,	St. Louis,	Missouri,	1865
Ferd. W. Sennewald,	St. Louis,	Missouri,	1865
Hubert Primm,	Carondelet,	Missouri,	1855
John C. Parr,	Covington,	Kentucky,	1856
D. B. Miller,	Covington,	Kentucky,	1864
H. A. Hughes,	Louisville,	Kentucky,	1857
C. Lewis Diehl,	Louisville,	Kentucky,	1863
George E. Jeannot,	Louisville,	Kentucky,	1864
George H. Carey,	Louisville,	Kentucky,	1866
Thomas E. Jenkins, M. D.,	Louisville,	Kentucky,	1866
George A. Newman,	Louisville,	Kentucky,	1866
Edward A. Preuss,	Louisville,	Kentucky,	1866
John Colgan,	Louisville,	Kentucky,	1867
Norman Fletcher,	Louisville,	Kentucky,	1867
Chas. K. Jones,	Louisville,	Kentucky,	1867
J. M. Krim,	Louisville,	Kentucky,	1867
J. F. Llewellyn,	Louisville,	Kentucky,	1867
Ferd. J. Pfingst,	Louisville,	Kentucky,	1867
C. Rademaker,	Louisville,	Kentucky,	1867
F. Sacksteder,	Louisville,	Kentucky,	1867
G. A. Zausinger,	Louisville,	Kentucky,	1867
N. Gray Bartlett,	Keokuk,	Iowa,	1864
C. F. G. Collins,	Beloit,	Wisconsin,	1859
John R. Drake,	Milwaukie,	Wisconsin,	1860
Robert J. Brown,	Leavenworth,	Kansas,	1862
E. T. Porter,	Junction City,	Kansas,	1867
Wm. H. Shuey,	Minneapolis,	Minnesota,	1864
Robert Ormsby Sweeney,	St. Paul,	Minnesota,	1866
George S. Dickey,	San Francisco,	California,	1859
George E. Hinckly,	San Francisco,	California,	1859
William H. Keith,	San Francisco,	California,	1859
James G. Steele,	San Francisco,	California,	1859
Henry Steele,	San Francisco,	California,	1859
H. M. Wilder,	San Francisco,	California,	1866
Charles P. Pollard,	Marysville,	California,	1859
F. T. Maynard,	Petaluma,	California,	1864
Charles Hodge,	Portland,	Oregon,	1859
John Best,	Central City,	Colorado,	1866
Benjamin E. Hays,	Central City,	Colorado,	1866

LIST OF DECEASED MEMBERS.

439

Jacob Krummeck,	Santa Fé,	New Mexico,	1867
J. E. D'Avignon,	Montreal,	Canada East,	1866
Henry R. Gray,	Montreal,	Canada East,	1867
Nathan Mercer,	Montreal,	Canada East,	1867
William Saunders,	London,	Canada West,	1860
Wm. Maurice Moore,	London,	Canada West,	1866
George J. Waugh,	Stratford,	Canada West,	1862
Alexander Bain Petrie,	Guelph,	Canada West,	1867
Thomas Lawrence,	Hamilton,	Ontario Canada,	1867
George W. Morgan, Jr.,	St. Thomas,	Ontario Canada,	1867
James B. Heyl,	Hamilton,	Bermuda,	1863
F. C. Herbruger,	Panama,	U. S. Colombia,	1867

LIST OF DECEASED MEMBERS.

HONORARY MEMBERS.

		Elected.	Died.
Franklin Bache, M. D.,	Philadelphia, Pa.,	1857,	1864
Thomas Farrington,	Boston, Mass.,	1856,	1867

ACTIVE MEMBERS.

		Elected.	Died.
James H. Anderson,	New York, N. Y.,	1859,	1866
Charles L. Bache,	San Francisco, Cal.,	1852,	1854
James Balmer,	Baltimore, Md.,	1856,	1866
John W. Barry,	Baltimore, Md.,	1856,	1861
John Beyron,	Shrevesport, La.,	1858,	1862
Francis O. Bigelow,	Medford, Mass.,	1859,	1863
Samuel J. Billings,	New York, N. Y.,	1860,	1865
Henry C. Blair,	Philadelphia, Pa.,	1855,	1862
John T. Brown,	Boston, Mass.,	1859,	1860
Benjamin Canavan,	New York, N. Y.,	1855,	1857
Charles T. Carney,	Boston, Mass.,	1853,	1862
W. F. Clency,	Cincinnati, O.,	1859,	1865
Walter S. Coon,	New York, N. Y.,	1858,	1861
N. Cressman,	Waterloo, Canada West,	1863,	1864
James E. Cunningham,	Pittsburg, Pa.,	1860,	1863
Alexander Cushman,	New York, N. Y.,	1858,	1861
John P. Dodge,	New York, N. Y.,	1855,	1863
George B. Fish,	Saratoga Springs, N. Y.,	1860,	1866
Richard Forester,	Brooklyn, N. Y.,	1860,	1862

		Elected.	Died.
William Gay,	Cambridgeport, Mass.,	1858,	1862
John C. Gerhard,	Cincinnati, O.	1862,	1866
Andrew Geyer,	Boston, Mass.,	1853,	1855
Louis Groneweg,	Cincinnati, O.,	1864,	1866
J. A. Hegeman,	New York, N. Y.,	1855,	1860
F. L. John,	Philadelphia, Pa.,	1856,	1864
Charles A. Junghanns,	Cincinnati, O.,	1858,	1862
Asbury Kent,	Cincinnati, O.,	1854,	1860
William Kent,	Cincinnati, O.,	1864,	1867
Henry King,	New York, N. Y.,	1858,	1867
E. E. Knapp,	Norwalk, Conn.,	1860,	1862
Joseph Laidley,	Richmond, Va.,	1852,	1861
James B. Lane,	Fitchburg, Mass.,	1856,	1867
William B. Little,	Panama, U. S. Colombia,	1857,	1867
Wm. Longshaw, Jr., M. D.,	Bayou Sara, La.,	1858,	1864
John McDonald,	Brooklyn, N. Y.,	1860,	1861
T. C. McIntyre, M. D.,	Washington, D. C.,	1858,	1862
James T. Maxwell,	New York, N.Y.,	1855,	1860
John Meakim (Pres. 1855-56),	New York, N.Y.,	1852,	1863
Wm. J. Olliffe, M. D.,	New York, N.Y.,	1858,	1866
Samuel W. Osgood,	Davenport, Iowa,	1858,	1860
Albert G. Palmer,	Washington, D. C.,	1858,	1860
S. P. Peck,	Bennington, Vt.,	1853,	1859
Samuel R. Philbrick,	Boston, Mass.,	1852,	1859
L. Phillips,	Baltimore, Md.,	1856,	1865
Jas. L. Polhemus,	Sacramento, Cal.,	1866,	1867
J. Lindley Pyle,	Brooklyn, N. Y.,	1859,	1866
Lewis Rehfuß,	Cincinnati, O.,	1854,	1856
David Roberts,	Boston, Mass.,	1858,	1863
Fred. Rollmann,	Philadelphia, Pa.,	1862,	1864
Jesse M. Sands,	New York, N. Y.,	1860,	1867
Harmar D. Scully,	Pittsburg, Pa.,	1858,	1866
C. Augustus Smith,	Cincinnati, O.,	1852,	1862
Wm. H. Squire,	Germantown, Pa.,	1862,	1865
Henry Steiner,	Philadelphia, Pa.,	1857,	1858
A. M. Stevens,	Cincinnati, O.,	1854,	1860
Thos. A. Sweetser,	South Danvers, Mass.,	1859,	1860
Wm. Thomas,	Jersey City, N. J.,	1855,	1856
S. B. Waite,	Washington, D. C.,	1858,	1862
G. W. Weyman, Ph. D.,	Pittsburg, Pa.,	1858,	1864
Daniel F. White,	Charlestown, Mass.,	1859,	1864
W. P. White,	Chicago, Ill.,	1865,	1866
Silas Whitehead,	Lynchburg, Va.,	1856,	1858
G. C. Wilson,	Boston, Mass.,	1859,	1861
C. Wiseman,	Baltimore, Md.,	1856,	1862
L. Witzell,	Cincinnati, O.,	1864,	1867
G. Davidge Wood,	Baltimore, Md.,	1856,	1863

LIST OF RESIGNATIONS.

John T. Fuller,	Ann Arbor,	Michigan,	1857
Otto Lippert,	Cincinnati,	Ohio,	1864
A. I. Matthews,	Buffalo,	New York,	1857
Wm. Tilley,	Cincinnati,	Ohio,	1864

LIST OF MEMBERS DROPPED FROM THE ROLL.

Samuel B. Allen,	Cincinnati,	Ohio,	1864
T. Roberts Baker,	Richmond,	Virginia.	1856
William Ball,	Elizabeth City,	New Jersey,	1860
Robert Battey,	Rome,	Georgia,	1859
William C. Brigham,	Woburn,	Massachusetts,	1865
William H. Brigham,*	San Francisco,	California,	1859
Edward H. Buehler,	Brooklyn,	New York,	1864
J. Hartley Bunn,*	Lynchburg,	Virginia,	1859
J. R. Carpenter,	Calais,	Maine,	1861
O. F. Cawthon,	Mobile,	Alabama,	1860
Fred. Colman,	Walla Walla,	Washington Territory,	1865
Hamilton Creighton,	Xenia,	Ohio,	1854
E. W. Crowther,	Cincinnati,	Ohio,	1864
Gustavus Dohme,*	Baltimore,	Maryland,	1863
Francis X. Dooley,*	Washington,	District of Columbia,	1863
Edw'd Donnelly, M.D.,*†	Philadelphia,	Pennsylvania,	1857
W. H. Durkee,†	Cincinnati,	Ohio,	1864
Alexander Duval,†	Richmond,	Virginia,	1852
Alexander H. Everett,	New York,	New York,	1863
Henry Gers,†	Cincinnati,	Ohio,	1864
F. Glackmeyer,	Montgomery,	Alabama,	1856
William E. Hagan,*	Troy,	New York,	1860
Francis D. Hardy, Jr.,	Cambridgeport,	Massachusetts,	1859
E. W. Hoyt,	Lowell,	Massachusetts,	1865
L. S. Hubbard,*	Brooklyn,	New York,	1860
John Jackson,*†	Knoxville,	Tennessee,	1857
Fayette W. Johnson,†	Fredericksburg,	Virginia,	1858

* Has certificate.

† Now unknown.

‡ Certificate destroyed by fire.

Ernest Kampfmüller,†	Cincinnati,	Ohio,	1864
E. Kunckel,	Cincinnati,	Ohio,	1864
W. A. Lansdell,	Atlanta,	Georgia,	1859
Louis D. Lanzwiert,*	San Francisco,	California,	1859
George C. Leys,*	Brooklyn,	New York,	1860
Peter D. Leys,*	Brooklyn,	New York,	1860
Robert J. Massey,	Atlanta,	Georgia,	1859
H. J. Macdonald,	Barnwell C. H.,	South Carolina,	1856
Samuel McPherson,*	Baltimore,	Maryland,	1856
J. B. W. Nowlin,	Rome,	Georgia,	1859
B. F. Oxley,†	Cincinnati,	Ohio,	1864
Fred. A. Otto,	Frederick,	Maryland,	1866
A. Palmer,	Janesville,	Wisconsin,	1860
Charles Pefferman,*	Peru,	Indiana,	1859
John S. Pemberton,*	Columbus,	Georgia,	1857
E. H. Price, M. D.,	Tanaroa,	Illinois,	1863
A. E. Richards,	Plaquemine,	Louisiana,	1855
A. Sansom,	Richmond,	Indiana,	1864
John C. Savery,*	Philadelphia,	Pennsylvania,	1862
Edwin Scott,	Chattanooga,	Tennessee,	1865
Alfred J. Shipley,*	Jersey City,	New Jersey,	1859
B. M. Smith,	Atlanta,	Georgia,	1859
William Snyder,	Cincinnati,	Ohio,	1864
A. A. Solomons,	Savannah,	Georgia,	1858
W. W. Solomons,	Savannah,	Georgia,	1858
Theodore St. Clair,	Philadelphia,	Pennsylvania,	1864
Charles H. Super,*	Pittsburg,	Pennsylvania,	1858
Fairman S. Taber,*†	Huntsville,	Alabama,	1861
Warren Tapley,	Lynn,	Massachusetts,	1859
J. A. Taylor,	Atlanta,	Georgia,	1859
John Thomson,	Sumter,	South Carolina,	1856
Robert Thompson,	Bloomington,	Illinois,	1860
Francis Tinker,	Leominster,	Massachusetts,	1860
George D. Towne,	Boston,	Massachusetts,	1858
A. Wagner,	Cincinnati,	Ohio,	1864
John McK. Walker,	Cincinnati,	Ohio,	1864
William H. Ware,*	Gloucester,	Massachusetts,	1859
W. H. Warner,	Rome,	Georgia,	1859
Wm. J. Watson,*	Brooklyn,	New York,	1860
F. M. Wells,	Charlotte,	Virginia,	1856
Wm. L. Wetherell,	Gloucester,	Massachusetts,	1865
James H. Widdber,*	San Francisco,	California,	1859
George W. Wilcox,*	Columbia,	Ohio,	1864
S. M. Zachrisson,	Richmond,	Virginia,	1853

* Has certificate.

† Now unknown.

INDEX.

Acacia arabica.....	178	Acid, periodic.....	204
Acaroid resin.....	257	phosphoric.....	193, 205
Acetylene.....	231	phosphorous.....	206
Acid, acetic.....	230	phylocyanic.....	263
angelic.....	233	picric.....	236
antimonious.....	193	propionic	233
arsenious.....	223	protocatechuic.....	238
benzoic.....	235	pyrogallie.....	238
benzolic.....	235	selenic.....	203
boric.....	206	silicic.....	206
bromocuminic.....	234	sulphhydric.....	191, 201
butyric.....	233	sulphhydric, apparatus.....	141
carbolic.....	197, 236	sulpho-benzolic.....	235
carminic.....	239	sulphur. arom.....	171
cathartic.....	234	sulphurous.....	191
chloric.....	203	tannic.....	236
chromic.....	196	tartaric.....	231
chrysamic.....	236	adulterated.....	283
chrysophanic in senna... 63,	371	from Amer. wine.....	377
citric.....	196, 232	titanic.....	220
coffeotannic.....	237	toluylic.....	235
crotonic.....	238	uric.....	239
eugenic.....	236	xylylic.....	235
formic.....	233	Acids, fatty.....	238
gallic.....	238	organic.....	196, 230
glycolic.....	239	Aconitia.....	241
hydrocyanic.....	227	Aconitum napellus.....	172
isomalic.....	232	heterophyllum.....	172
kinic.....	234	Acroleine.....	198
kynurenic.....	239	Aegle marmeles.....	175
lecanoric.....	264	Agaricus bulbosus.....	191
malonic.....	232	Agave americana.....	189
nitrous.....	201	Air-pump.....	140
oleic.....	238	Albumin.....	265
orsellic.....	264	Alcanin.....	263
oxalic.....	197, 231	Alcohol.....	248
oxyacetic.....	239	frauds in making.....	49

Alcohol from coal oil waste.....	150	Apparatus on exhibition.....	327
from wood.....	150	stirring.....	140
market.....	273	Araliaceæ.....	179
price of.....	42, 281, 276	Arrowroot.....	197
seizures of.....	50	demand for.....	283
Alcohols.....	248	Arsenicum.....	222
Alizarin.....	263	Articles, miscell., on exhibition...	327
Alkalies.....	208	Asagræa officinalis.....	190
organic.....	197, 240	Asclepias contrayerva.....	185
Allyl, sulphide.....	255	Asparagin.....	260
Aloisol.....	255	Assafœtida adulterated.....	43
Alum, ammonio-ferric.....	215	resin.....	257
Alumina.....	213	Atropia.....	244
acetate.....	230	Aurantiaceæ.....	175
sulphate.....	213	<i>Babcock, J. F.</i> , beeswax.....	98, 372
Aluminium.....	213	Balsaminaceæ.....	174
Alumni Assoc. of Philad. Coll. of		Barium.....	211
Pharmacy.....	18	Barks.....	283
Amanites.....	191	Bases organic.....	240
Amaryllidaceæ.....	189	Bay-water.....	283
Amendments to Constitution—		Bebeerina sulph.....	197
acted on.....	53, 56, 67	Beeswax.....	372
proposed.....	22, 38	Benzoin in ointments.....	77, 151, 385
Ammonia.....	210	market.....	284
acetate.....	165	tincture of.....	387
Ammonium.....	210	Benzole.....	253
chloride.....	211	Bismuth.....	222
iodide.....	211	acetate.....	222
sulphide.....	211	ore.....	193
sulphocyan.....	228	scarcity of.....	42, 43, 283
Amylic oxide, nitrite.....	250	solution.....	165
Amylene.....	254	subnitrates.....	222
Anacardiaceæ.....	174	Bleaching.....	144
Analysis of ashes.....	147	Blood.....	265
organic elementary.....	146	Blow-pipe.....	147
Anderson, Jas. H., deceased.....	28	Borax.....	193, 206
Anethole.....	254	Boron.....	206
Angræcum fragrans.....	188	Bottle for poisons.....	83
Anilina.....	246	volatile oils.....	109
Aniline blue.....	246	Boundau.....	185
Anthemis nobilis.....	182	Brandy.....	198
Antiaris toxicaria.....	188	Brassica oleracea.....	173
Ants' eggs.....	42, 274	Brine, utilization of.....	150
Antimony, determination.....	223	<i>Brewer, Wm. A.</i> , Report on the	
Apocynaceæ.....	185	Drug Market.....	267
Apparatus.....	138	<i>Bringhurst, Ferris</i> , pill machines	108, 375
for displacement.....	140		

Bromine.....	185, 283	Chenopodium anthelminticum.....	66
<i>Bullock, Ch., Veratrum viride</i>	360	Chimogene.....	254
Burgundy pitch.....	283	Chlorine.....	203
Butea frondosa.....	177	Chloroform.....	197, 249
Butter of cacao.....	108, 347	Chlorocyanogen.....	229
Cacao butter.....	108, 347	Chlorophyll.....	263
medicated.....	152	Cholera drops.....	158
Cadmium.....	217	pills.....	161
Caffeina.....	244	Chromocyanogen.....	229
Calcium.....	211	Chromogenes.....	263
fluoride.....	212	Cinchonas.....	180
phosphide.....	211	Cinchonia, effect of H on.....	244
sulphide.....	211	Citrus bigaradia.....	175
Calisaya bark, supply of.....	272	limetta.....	175
Camphor.....	256	limonum.....	175
ice.....	151	Clamp, spring, for burettes.....	141
price of.....	283	Cobalt.....	216
Cane sugar, decomposition.....	259	sulphate.....	216
purification.....	258	Coccus cacti.....	192
test.....	258	Cod liver oil, adulteration.....	272
Cantharidin.....	262	emulsion.....	157
Cantharis vesicat.....	192	iodo-ferrated.....	158
Caprifoliaceæ.....	180	supply.....	285
Capsicum.....	184	Coffea arabica.....	181
Caramel.....	259	<i>Colby, F. W., honey and its adul-</i>	
Carbon.....	206	terations.....	341
bichloride.....	208	Colchicia.....	245
sulphides.....	207	Colchicin.....	99, 863
Carotin.....	260	<i>Colcord, S. M., Report on the Bos-</i>	
Castile soap.....	197	ton Drug Market.....	279
Castilleja elastica.....	188	Colleges of Pharmacy, delegates...	18
Castor oil.....	272, 285	Collodion.....	164
bolus.....	161	Committees—	
Catawba wine, tartar from.....	377	auditing, appointed.....	33
Cauteries.....	151	report.....	57
Cement.....	149	on credentials.....	16
Cerates.....	151	drug market.....	33
Ceratum cetacei.....	387	report.....	40, 267
plumbi subacet.....	387	internal revenue law.....	86
Certificates, fee for, increased.....	73	report.....	309
Charcoal.....	207	nominations appointed.....	22
Chemicals, medicinal.....	194	report of.....	33
on exhibition.....	319	progress of Pharmacy.....	33
Chemistry, inorganic.....	199	report of.....	120
organic.....	227	scientific queries.....	36
vegetable.....	266	report of.....	116
		specimens appointed.....	67

- Committees—
 report of..... 318
 time granted to finish re-
 port..... 121
 Compositæ..... 182
 Constitution 415
 Convolvulacæ..... 184
 Copaine Mège de Jozeau..... 159
 Copper..... 218
 ammoniated..... 218
 chromate 163
 salts, basic..... 218
 Corrosive sublimate 196, 224
 Coryamyrin 262
 Corydalina..... 243
 Counterpoise on shop scales 109
 Cream of tartar, adulterated 43, 46, 85
 from American
 wines 84
 purification of.... 84
 pure 85
 Creasote..... 196, 236
 Crème de bismuth..... 157
 Orocus sativus..... 189
 Croton humilis..... 186
 Cruciferae..... 173
 Cryolite, uses of..... 44, 81, 276, 402
 Cryptopia..... 242
 Crystallization 142
 of phosphorus..... 204
 Cubebs, diuretic principle of.... 93, 337
 oleo-resin..... 94
 Cuminol..... 255
 Cunila mariana 183
 Curcumin 263
 Cuscuta monogyna 184
 Cyanin..... 246
 Cyanogen compounds..... 227
 Cymol..... 255
 Cypridium pubescens..... 189
 Cytisus laburnum..... 177
 Dacrydium cupressinum..... 188
 Damara australis 188
 Decoct. sarsap., compound..... 98, 339
 Delegates to this meeting..... 18
 to International Phar-
 maceutical Congress.. 51
 Dextrine..... 258
 Dialiser 141
 Dialysis 143
 Diamonds 192, 207
 Diazobenzole..... 253
 Diehl, C. L., colchicine..... 99, 363
 report on progress of
 Pharmacy..... 123
 syrupus Senegæ.. 98, 342
 Digitalis purpurea..... 183
 Diphenylamine 247
 Disinfectants 145
 Displacement apparatus..... 140
 Distillation 143
 Distilled water..... 152
 Ditolylamine 247
 Doliber, Thos., benzoïn in oint-
 ments 385
 Donations to the Association... 93, 121
 Donovan's solution 165
 Drug market, Baltimore..... 277
 Boston..... 279
 New York..... 270
 Philadelphia 275
 Drugs, animal..... 192
 duty on..... 88, 289, 305
 inferior, sold by the Gov-
 ernment 41
 on exhibition.... 319
 rejected 305
 vegetable 172
 Dyeing..... 144
 East River Medic. Assoc., commu-
 nication of..... 112
 Eau de Pagliari..... 157
 Elaud's Boontyes..... 177
 Electric machine 140
 Elixir, bismuth..... 152
 calisaya, iron and bismuth 153
 ferrated, of gentian.. 153
 of horseradish..... 153
 of iodide of iron and quinia 153
 Ellis, Evan T., cryolite..... 80, 402
 report on drug mar-
 ket 288
 Emulsion of cod liver oil 157

Emulsion of tar	157	Glass drilling	149
Ergot	358	engraving.....	149
fluid extract.....	63	vessels	139
powdered	64	ware.....	284
Erythrin.....	264	Glucose test.....	289
Erythrocentaurin	261	Glucosides.....	260
Essence of beef.....	154	Glue.....	265
Essences.....	167	Glycerine.....	249, 250
Ether, acetic.....	248	Glycerole of sumach.....	155
chrysamic.....	249	Glyconine.....	157
tungstic.....	249	Gold.....	225
Ethylamine	249	hyposulph.....	225
Eucalyptus resinifera	179	Gossypium herbaceum.....	174
Eupatorium	182	Graminacæ	190
incarnatum	400	Granatacæ	179
Euphorbiacæ	187	Granules, citrate of magnes.....	163
Excursion of the Association.....	121	effervescing.....	163
Exports from Baltimore.....	299	Graphite.....	207
Extracts.....	153	Guaiacum	284
narcotic, powdered.....	154	Guibourt, M., death of.....	51
Extract, cod liver oil.....	154	Gum arabic.....	283
of meat.....	154	Gun cotton.....	257
colocynth. alcohol.....	154	Helenium autumnale.....	182
<i>Faber, John</i> , report on Interna- tional Pharm. Congress.....	314	Heliscarpus copalifera	174
Farrington, Thos., deceased.....	27	Helleborin	260
Fermentation.....	143	Helleborus.....	172
Filters and filtration.....	109	Herbs, indigenous.....	274, 278, 284
Fluid extract of buchu... ..	155	Hesperidine sugar	260
cinchona.....	155	<i>Heydenreich, F. V.</i> , diuretic princi- ple of cubebs.	93, 337
ergot	155	tinct. ferri chlor.....	95, 361
Foliage, action of.....	266	Hirudo medicinalis.....	192
Formamide.....	247	Honey, adulterations....	61, 341
Fruit essences.....	167	purification	156
Fuchsina	247	Hunnewell, J. L., case of.....	99
Fuel	144	Humulus lupulus.....	188
Fumarina.....	243	Hydrastis, an adulteration of ser- pentaria.....	92
Fungi.....	191	Hydrocarbons	252
Funnels.....	109	Hydrogen	200
Furnace, cheap.....	139	binoxide.....	201
Galena.....	193	phosphoretted.....	205
Gamboge resin.....	257	Hyoscyamia.....	244, 404
Gas, illuminating.....	150	Hyoscyamus niger.....	184
Gastrolobium bilobum.....	176	Hyposulphites.....	194
Gizzard of S. Amer. ostrich.....	400	Iodine	194, 203

Iodine terchloride.....	204	Lead, acetate.....	230
Iridaceæ.....	189	iodide.....	218
Ilmenium.....	220	nitrate.....	196
India rubber.....	257	nitrite.....	218
Indigo, new color from.....	264	perchloride.....	219
Indium.....	218	Leeches.....	192
Inorganic compounds.....	194	Leguminosæ.....	176
Insurance, fire.....	29	Leukaniline.....	247
Invitation from—		Life membership abolished.....	67
L. I. Hist. Soc.....	17	Lignin.....	257
Perkins, Stern & Co.....	48	Lime.....	212
to excursion.....	84	crucibles.....	139
Invitations for next meeting.....	104	<i>Lincoln, Henry W.</i> , oleum theo-	
<i>Ipomœa turpethum</i>	184	bromæ.....	108, 347
Iron.....	215	Linimentum aconiti.....	156
alcoholized.....	162	Liquidambar orientale.....	174
chloride, tincture of.....	95, 361	Liquor carbonis detergens.....	157
in medicine.....	285	Little, Wm. B., deceased.....	28
peracetate.....	165	Liliaceæ.....	189
pernitrate.....	165	List of deceased members.....	439
protochloride.....	216	members dropped.....	441
protoxalate.....	82, 231, 407	publications received.....	413
protosulphate.....	215	resignations.....	441
rusty.....	148	societies, &c. receiving the	
sesquioxide.....	91, 215, 384	Proceedings.....	411
valerianate.....	234	<i>Lobelia inflata</i>	183
vessels.....	138	Local Secretary elected.....	105
with brass.....	148	<i>Lophophytum mirabile</i>	191
Isatine.....	264	Lozenges.....	159
Ivory, artificial.....	150	Luting.....	149
Imports at Baltimore.....	297	<i>Lycina</i>	245
Boston.....	299	Malt, constituents of.....	258
value of.....	305	Maltose.....	258
New York.....	289	Mannite.....	260
Philadelphia.....	294	Magnesia, citrate.....	233
Jalap, commercial.....	380	granules.....	163
Judkins' ointment.....	151	solution.....	164
King, Henry, deceased.....	28	sulphate.....	213
Labiatae.....	183	sulphite.....	213
Lac sulphur.....	385	silicate.....	196
Lane, James B., deceased.....	27	Magnesium.....	212
Lard, benzoinated.....	151	Maine Pharm. Assoc.....	18
Lauraceæ.....	186	Malvaceæ.....	174
Lead.....	218	Manganium.....	213
		binoxide.....	213
		Manganese, sulphate.....	215

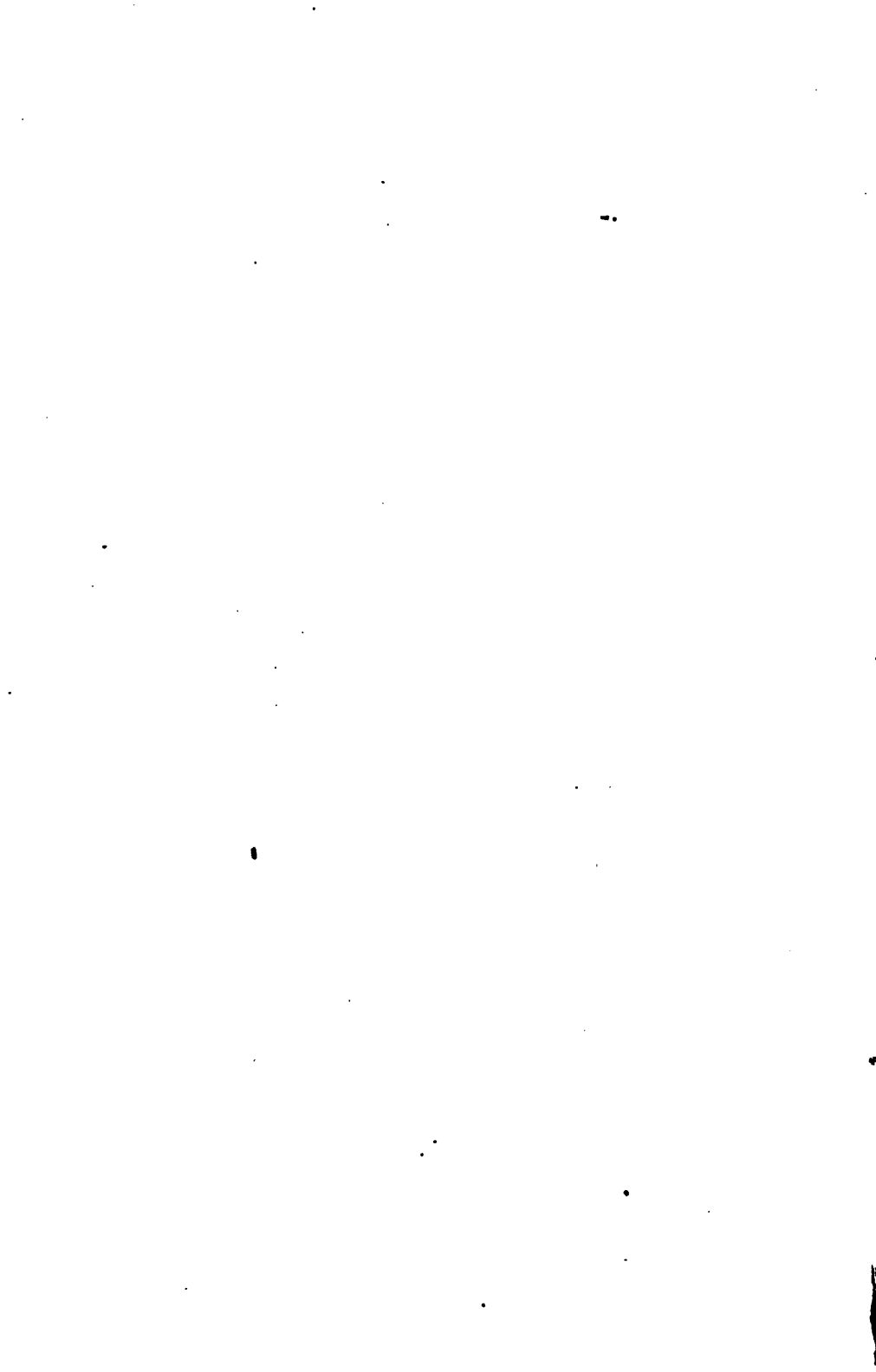
Marsh's apparatus	142	Myrtaceæ.....	179
Mata.....	400	Narceina.....	197, 242
Meeting, next annual.....	105	Narthex assafoetida.....	179
Melanthaceæ	190	Nicotina.....	245
Members, election of....	19, 52, 67, 98,	Nitro-benzole	253
99,	112	Nitrogen.....	201
dropped	441	Nitro-glycerine.....	252
in arrears.....	34	Nitro-prusside.....	228
of Southern States..	29, 50	Nominations discussed.....	34
roll of.....	421		
present at meeting.....	20		
resigned.....	33	Officers elected.....	38, 40, 105
Menyanthin.....	262	nominated.....	33, 36
Mercury	223	Oil, almond.....	198
bibromide	224	bitter almond.....	256
bichloride	196, 224	castor, supply.....	272, 285
price.....	255	cod liver, supply..	272, 285
protiodide	224	olive.....	185, 285
sulphide	223	sassafras	256
sulphocyanide.....	228	Oils, fixed	198
Mesitylene.....	250	volatile	198, 246, 285
Mill, new powdering.....	114	adulterated.....	48
Mill, James W., ergot.....	358	Ointment, Judkins'.....	151
Milleman, Ph. L., hydr. sesqui-ox-		mercurial.....	152
ide of iron.....	91, 384	Ointments, benzoinated.....	151, 385
Minerals	192	Olea Europæa.....	185
Minutes of the 1st session.....	17	Oleo-resins	154
2d	27	Oleum theobromæ.....	108, 347
3d	50	Opium.....	173
4th	67	price of.....	283
5th	84	American.....	378
6th	99	Opodeldoc, iodized... ..	156
Molybdates	221	Orchidaceæ.....	188
Moith, A. T., lac sulphur.....	83, 385	Orcin.....	264
poison bottles... ..	83, 390	Organic compounds.	196
spirit of nitre.....	83, 383	Osmium.....	193, 227
Morindin.....	265	Ostrich, gizzard of.....	400
Moringia pterigostigma.....	178	Ovum.....	192
Morphia, estimation.....	241	Oxygen.....	199
meconate	166, 382	Ozone.....	200
test for.....	241	from plants.....	266
Moschus.....	192		
Moxa.....	151	Palicourea Margravii.....	181
Musk mixture.....	157	Palladium.....	226
Myrrh, adulterated.....	43	Panax Colensi.....	179
Myrospermum peruiferum.....	177	Papaver somniferum	178
toluiferum.....	177	Paraffine.....	199, 255

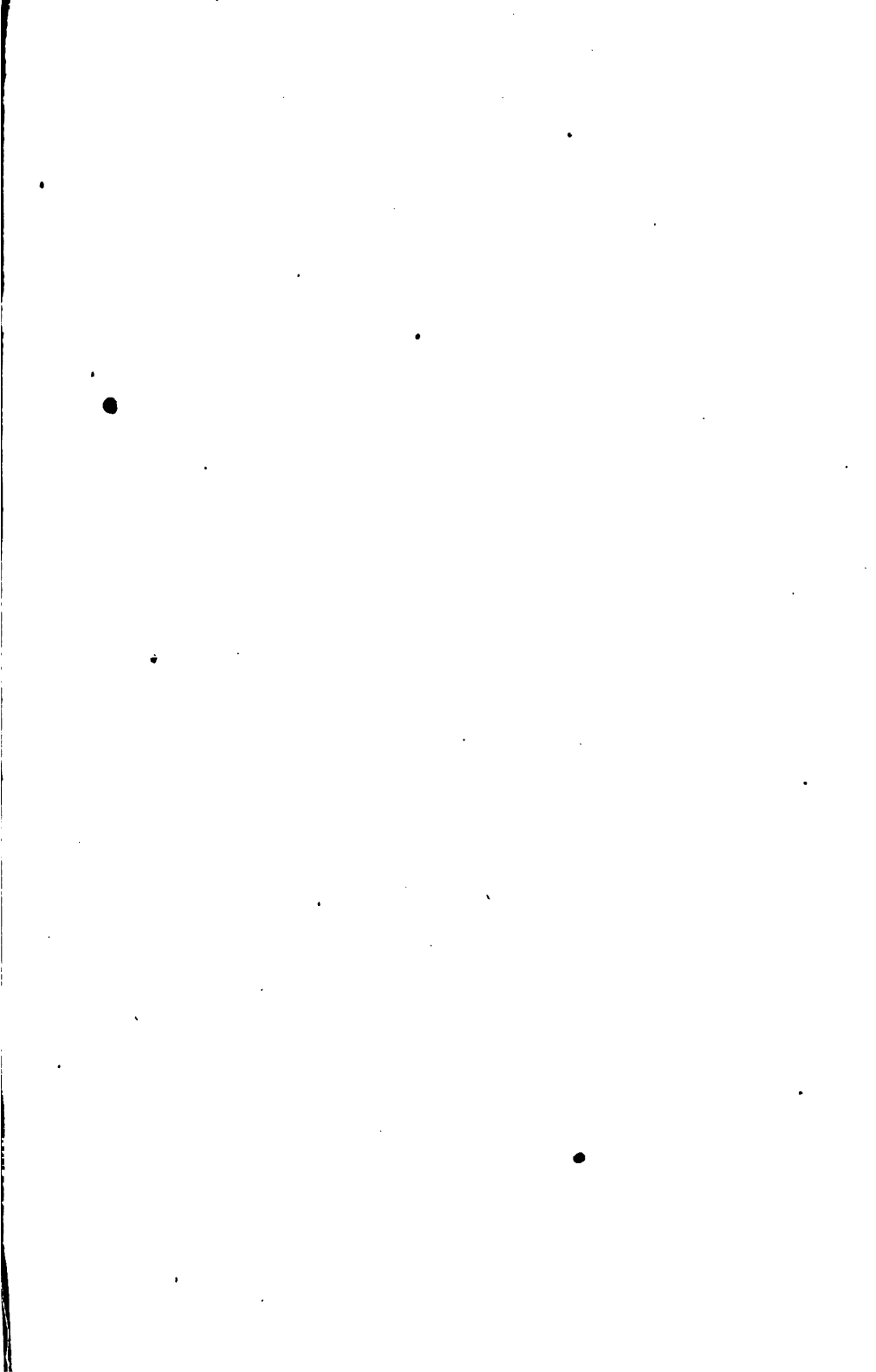
- Parrish, Edw.*, report on the inter-
nal revenue law 308
- Pedaliaceæ..... 183
- Pepsin..... 265
- Persea gratissima*..... 186
- Petalostigma quadriloc* 187
- Petroleum 255
- Pharmaceutical preparations on
exhibition..... 319
- Pharmacy 138
- Pharm. Assoc. of the District of
Columbia..... 18
- Pharmacopœia, British..... 124
- French..... 123
- Russian 123
- Phenyl-tolylamine..... 247
- Phormium tenax..... 189
- Phosphates 205
- Phosphorescence..... 205
- Phosphorus..... 195, 204
- hydride..... 205
- chlorosulphide..... 206
- Physostigmina..... 243
- Pill machines..... 109, 375
- Pilulæ copaiabæ*..... 159
- metall. et amar 160
- Pills, coating of..... 159
- iron, iodide..... 160
- proto-carbonate..... 160
- saccharate..... 160
- silver, nitrate 160
- Plasma..... 152
- Plaster, adhesive..... 159
- cantharides 160
- lead..... 160
- zinc..... 160
- Platinum 226
- sulphite 226
- vessels 138
- Podophyllum peltatum*, value of
root..... 379
- Poison bottles..... 390
- Polhemus, Jas. L., deceased..... 28
- Polygonacæ 186
- Polyporus anthelmint.*..... 191
- Potassa..... 209
- Potassa, bitartrate, from Catawba
wine..... 377
- nitrate..... 195, 209
- permanganate..... 196, 214
- Potassium 209
- bromide 195
- cyanide..... 227
- ferrocyanide 227
- iodide..... 195, 209
- sulphocyanide..... 228
- Powdering..... 142
- mill, new 114
- Powders 162, 286
- President elected..... 38
- President's address..... 23
- Proceedings, cost of..... 27, 34
- on hand..... 29
- Procter, Wm., Jr.*, report on Inter-
national Pharm. Congress..... 314
- Processes..... 142
- Propylene oxide..... 252
- Protein compounds..... 265
- Prussian blue, soluble 227
- Ptelea trifoliata*..... 174
- Publications, American..... 127
- English..... 128
- French..... 131
- Dutch..... 135
- German..... 132
- Italian..... 136
- Spanish 137
- presented..... 22
- received..... 413
- Punica granatum*..... 179
- Purpurin..... 263
- Putty for metals..... 149
- Quicksilver in North Carolina..... 401
- Quinia, chlorate..... 244
- decomposition by H..... 244
- Quinoidine..... 244
- Ranunculacæ..... 172
- Repercolation 391
- Report of Auditing Committee..... 57
- Comm. on Credentials.... 18

Report of Com. on Drug Market, 40, 267	Saccharum officin..... 199
on Internal Revenue Law.... 49, 309	Saffron 189
on Nominations... 33	Sagapenum resin..... 257
amended, 36	Salary of Treasurer and Secretary, 90
on Prog. of Phar., 123	Salvia hispanica..... 183
on Scien. Queries, 116	Sands, Jesse M., deceased..... 28
on Specimens..... 318	Sanguinaria canadensis..... 173
of delegates to International Pharm. Congress..... 51, 314	Santonin..... 261
of Executive Committee..... 27	tablets..... 161
of Permanent Secretary..... 29	Sarracenia purpurea 172
of Treasurer..... 33	Sarracenina 243
Reports presented 21	Sassafras officinalis..... 186
special..... 337	Saunders, Wm., decoct. sarsap. comp..... 98, 339
read..... 57, 93, 108	podophyllum pel- tatum..... 81, 379
volunteer..... 377	Schinus molle..... 174
read..... 81, 91	Scoparin 262
Resins .. 198, 256	Scrophulariaceæ..... 183
Resolution in regard to legal control of practice of pharmacy..... 105	Scully, Harmar D., deceased..... 28
Resolution to invite Professors, &c. 18	Selenium 203
of thanks to retiring officers..... 40	iodide..... 203
to local members..... 121, 122	Selenocyanogen 229
to Mr. Bedford, 122	Senna..... 177
to reporters..... 121	Alexandria, quality. 285
to endow a library and cabinet..... 76	chrysophanic acid in..... 371
Retorts..... 139	cathartic acid in..... 234
Rhamnus catharticus.. 176	Sennewald, F. W., on chrysophanic acid in senna..... 371
frangula..... 176	Serpentaria, adulterated..... 92
Rheum 186	Sesamum indicum..... 183
Rhizantæ..... 191	Silicates..... 207
Rhœadina . 243	Silicates, insoluble, applied..... 149
Rhus acuminata..... 174	Silicium..... 206
Ricinus communis..... 187	Silver 225
Rhubarb, American..... 271	iodide..... 225
supply of..... 271, 276, 284	tarnished 146
Roots, indigenous..... 274, 278, 284	Simms, G. G. C., protoxalate of iron in medicine, 82, 407
Rosa damascena..... 178	Sirop de pepsin..... 168
Rubiaceæ..... 180	Soap, Castile..... 197
Rutaceæ..... 174	liquid 156
Ruthenium 193	vegetable..... 178
Sabadilla..... 190	Soda, chrysamate..... 236
	from cryolite..... 44, 276
	market of..... 286
	nitrate..... 210

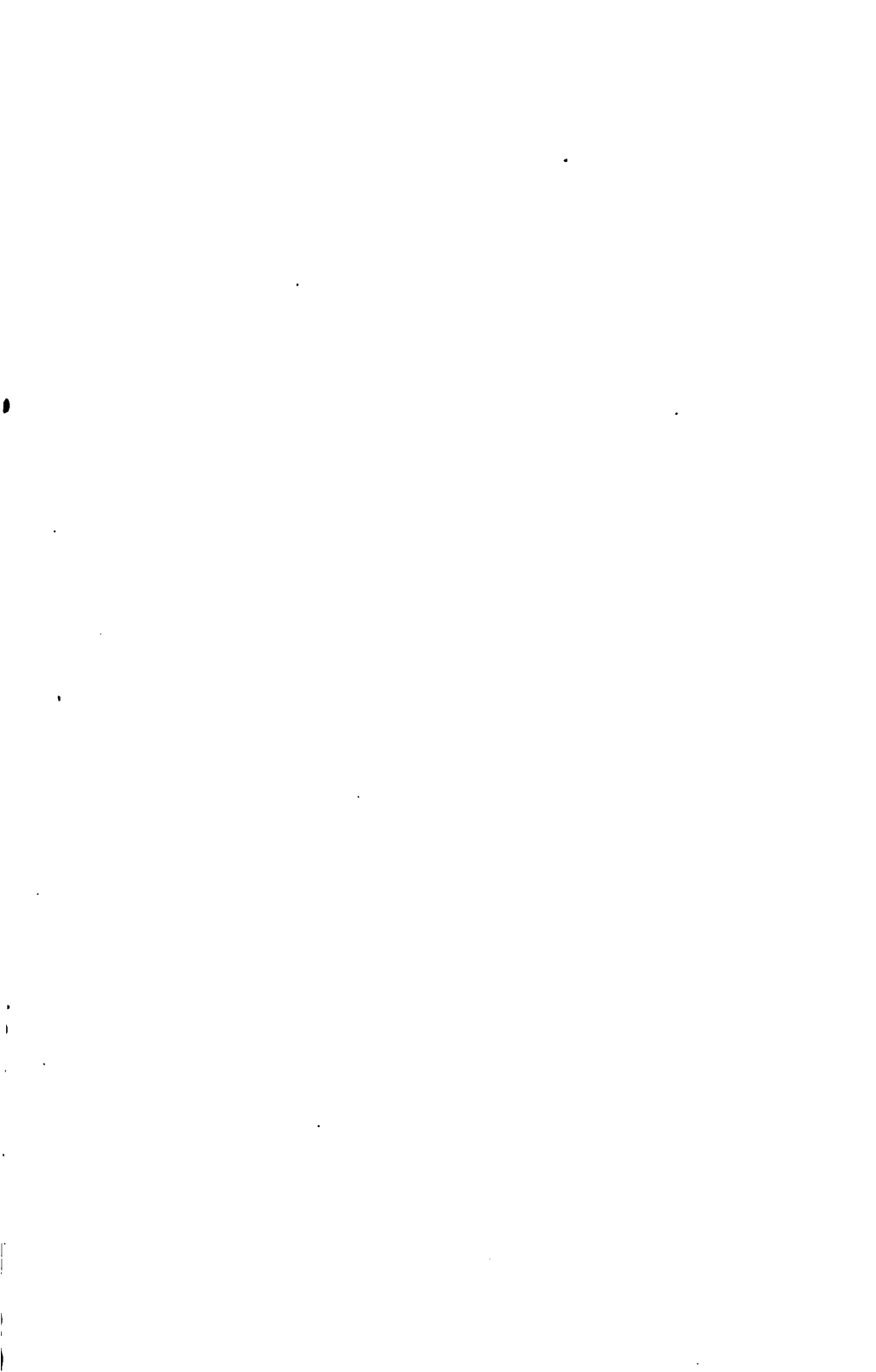
Soda, nitrite.....	210	Tartar emetic, price.....	285
sulphate.....	210	Ternstro miaceæ.....	176
Sodium.....	210	Terra alba, adulteration of cream	
amalgam.....	148	of tartar by.....	47
chloride.....	196	Test papers.....	149
nitro-prusside.....	228	Thallium.....	219
Solanum paniculatum.....	184	Thea Chinensis.....	176
Solutions.....	163	Thermoterion.....	140
Sorghum sacchar.....	190	Thiosin namide.....	247
Specific gravity apparatus.....	141	Thomsen, J. J., report on drug mar-	
of gases.....	147	ket.....	238
Spirit of nitre, preparation, 83, 166,	383	Tiliaceæ.....	174
quality.....	273	Tin.....	220
strength of, ... 45,	83	Tinct. ferri chlor..... 95, 170,	361
Spiritus ammon. arom.....	166	benzoini.....	170, 387
Squibb, E. R., commercial jalap, 93,	380	conii fruct.....	170
repercolation..... 93,	391	lycoperd.....	170
Starch.....	197, 257	odontalgica.....	170
Stirring apparatus.....	140	opii deodorata.....	170
Stock of Proceedings.....	29	rosæ centifol.....	171
Strychnia.....	197, 244	Titanium.....	220
Sublimate, corrosive.....	196, 224	Treasurer, salary of.....	90
Sugar.....	197	Triticum hybernum.....	190
cane.....	258	Tsa-tsin.....	182
from beets.....	143	Tungsten.....	221
grape.....	259	Tungstic ether.....	249
hesperidine.....	260	Turpentine camphor.....	256
Sugars.....	257	Turpethin.....	261
Sulpho-benzolates.....	235	Umbelliferæ.....	179
Sulphur.....	193, 194, 201	Unguent. aquæ rosæ.....	389
lac.....	385	Uranium.....	216
Suppositories.....	167	salts.....	217
Suppository moulds.....	139	Urtica dioica.....	187
Sweetser, Thos. A., deceased.....	27	Uvaria odorata.....	175
Syringa vulgaris.....	186	Valeriana officinalis.....	182
Syrup of horseradish.....	169	Value of rhizome and radicles of	
ipecac.....	167	podophyllum.....	379
lime.....	168	Veratrum viride.....	62, 360
pepsin.....	168	Viburnum prunifolium.....	180
phosph. iron, &c.....	168	Vinegar.....	230
Syrups from extracts.....	167	Vinum Chinæ ferrat.....	171
fruit.....	167	diureticum.....	171
Syrupus senegæ.....	98, 342	Vitaceæ.....	175
Table of repercolations.....	398	Vitellus ovi.....	191
Tannin, artificial.....	150		
Tantalum.....	220		

Volatile oils, adulterated.....	48	Weights.....	189
quantitative determi-		Wheat phosphate.....	163
nation.....	147	Whiskey, frauds in making....	49, 308
Wadgyamar, Arthur, hyoscyamia....	404	examination.....	198
Water.....	201	Wine, Catawba, tartar from.....	377
drinkable, from sea water....	149	Wines.....	171
purification of.....	147	American, discussion on.....	58
Wax, bees... ..	98, 372	red.....	198
white	199	sherry.....	198
supply of.....	273	Wrightia antidysenterica.....	185
yellow, in ointments.....	78	Xylol.....	254
Wayne, E. S., American opium, 80,	378	Yolk of eggs.....	192
bi-meconate of mor-		Yttria	193
phia.....	80, 382	Zinc.....	217
gizzard of S. Amer.		arsenate.....	193
ostrich.....	80, 400	chloride, cauterizer.....	151
mata.....	80, 400	coloring	148
quicksilver in North		valerianate.....	235
Carolina.....	80, 401		
tartaric acid, &c.,			
American	80, 376		











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